NATUR CYMRU
Nature of Wales

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- Organic farming
- Montane rescue
- Biosffer Dyfi
- Climate change
- Wildlife for kids
- Books, News, Comment...

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NATUR CYMRU
The Nature of Wales

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Natur Cymru is intended to promote the exchange of information about biodiversity and encourage debate. If you have information, ideas for articles or artwork which you think might be of interest to readers, please contact the Editor.

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NATUR CYMRU GOLYGYDDOL

Gan fod yr holl jargon a glywn yn ein gwaith wedi gwreiddio mor ddwfn yn ein meddyliau, mae hi'n anodd ysgrifennu am yr hyn a wnawn heb ddefnyddio'r geiriau gwag yma. Rhan o 'ngwaith i yw cael gwared â'r rhain. Os credwch chi nad wyf bob amser yn ddigon trylwyr, y cwbl y gallaf ei ddweud yw na wyddoch chi beth sydd o 'mlaen cyn imi ddechrau golygu.

Ond mae rhai cyfranwyr yn ysgrifennu mor ddidwyll a chlir nes fy llorio'n llwyr. Pan deithiodd Vicky Moller a chriw o bobl o bob oed i Frwsel i siarad â gwleidyddion am newid hinsawdd, fe wnaethon nhw rywbeth dewr a phwysig iawn. Pam na ddylai Cymru fod yn batrwm o fyw cynaliadwy? Delfryd yn unig, erbyn hyn, yw'r syniad y dylen ni fyw heb danwydd ffosil; ond rhaid i rywun leisio'r gwirionedd. Ryw ddydd, fe fydd hyn yn ffaith.

Dechreuodd Patrick Holden ar ei yrfa fel ffermwr tua dechrau'r 1970au, ac roedd yn benderfynol o wireddu ei egwyddorion amgylcheddol. Yr adeg honno, roedd ffermwr a oedd yn gwrthod defnyddio plaladdwyr neu wrtaith artiffisial yn wynebu talcen caled. Ond daeth ef a ffermwyr organig eraill at ei gilydd yn dalog i bennu safonau ac adeiladu marchnad organig. Fe ddenodd hyn gwsmeriaid a chanddyn nhw awydd i brynu bwyd a oedd yn gydnaws â'r amgylchedd. Mae cadwraethwyr proffesiynol yn tueddu i anwybyddu'r buddion a ddaw i ran natur – maen nhw'n canolbwyntio, yn hytrach, ar fân bethau, ac ar wahanu rhannau o gynefinoedd oddi wrth eu cyd-destun, gan fethu â gweld y darlun cyflawn. Fel y dywed Patrick, mae ffermio dwys wedi arwain at rwyg anffodus rhwng cynhyrchwyr bwyd a chadwraethwyr.

Gall newid hinsawdd gael effaith andwyol ar lystyfiant bach y mynyddoedd. Er bod safleoedd yn cael eu dynodi gyda'r bwriad o'u gwarchod, rywsut mae'r llystyfiant yma'n diflannu o flaen ein llygaid.

Ray Woods

Helygen bach • *Salix herbacea* • Dwarf willow

Mae'r 'rhostir y mynydd' y cyfeiria Barbara Jones ato yn gwneud imi ofyn a yw dynodiadau rhyngwladol yn cael eu rhoi ar waith yn iawn, oherwydd mae'n ymddangos nad ydyn nhw'n llwyddo ym mhob achos. A yw hi'n ormod disgwyl i wlad gyfoethog helpu'i thirfeddianwyr i warchod cynefinoedd prin o'r fath?

Ar ôl saith mlynedd o ymgyrchu dros Ymddiriedolaeth Natur, mae Julian Branscombe a'i deulu wedi symud i Ynysoedd Erch. Wrth gnoi cil dros frwydrau a enillwyd ac a gollwyd yng Ngwent, mae'n cofio am lwyddiannau nodedig – fel y tro hwnnw y caniatawyd i degeirianau neidio dros glawdd gwarchodfa natur a sefydlu ar dir fferm. Ond mae'n cofio hefyd am fethiannau, fel y tegeirianau llydanwyrdd bach sydd ar fin diflannu. Ei awgrym ef yw nad yw cynlluniau amaeth-amgylcheddol wedi llwyddo bob tro i gyfuno ffermio a bioamrywiaeth. Wrth gwrs, mae hyn yn adleisio'r ddadl gyffredinol ein bod angen systemau ffermio sy'n parchu natur yn hytrach na chynlluniau amaeth-amgylcheddol sy'n ceisio gwneud yn iawn am y niwed a gaiff ei wneud.

Ond mae un peth yn sicr – dim ond trwy gydweithio y gallwn ddelio â'r pwysau cynyddol sydd ar yr amgylchedd naturiol. Ceir enghreifftiau o'r hyn y gallwn ei wneud gyda'n gilydd mewn dwy o'r erthyglau – partneriaeth rhwng llywodraeth leol, busnesau a ffermwyr, er enghraifft. Mae'r canlyniadau'n galonogol ac yn haeddu clod a chydnabyddiaeth.

James Robertson

NATUR CYMRU EDITORIAL

Sometimes the jargon of the workplace infiltrates our minds so fully that we can't write about what we do without reaching for a set of overused vogue words and phrases. Part of my job is to root these out. If you think at times I'm being less than thorough, all I can say is you don't know what I started with.

On the other hand, sometimes contributors write with such honesty and clarity that it takes my breath away. When Vicky Moller and a group of all ages travelled to Brussels to talk to politicians about climate change, they did something courageous and important. Why should Wales not be a model for sustainable living? The idea that we should begin to forge a way of living without fossil fuels may seem hopelessly idealistic now, but someone has to voice this truth. The day will dawn when it is a generally accepted fact.

Patrick Holden began his farming career in the early 1970s determined to put his environmental principles into practice. At that time the odds against farming without artificial fertilizers or pesticides were overwhelming. Undaunted, he and other organic farmers got together to set standards and build the organic market. This attracted consumers who wanted to buy food that did not come with a heavy environmental cost. The benefits to nature have been mostly ignored by professional nature conservationists who focus on detail, separate bits and pieces of habitat from their context, and fail to see the broader issues. As Patrick puts it, intensification has brought about an unhealthy schism between food producers and the nature conservation movement.

Lesser butterfly orchid

The dwarf vegetation on mountain top plateaux is fragile and vulnerable to climate change. How is it that, despite every protection designation going, it is being eliminated before our eyes? Barbara Jones' plea for the last remnants of montane heath makes one wonder whether international designations are being properly implemented, as they seem to be failing in their purpose. Is it too much to hope that a rich developed nation can find ways that enable its landowners to protect rare habitats like this?

After seven years as a campaigning leader of a Wildlife Trust, Julian Branscombe has moved with his family to Orkney. Reflecting on battles won and lost during his time in Gwent, he remembers successes such as the farmland where conservation management has allowed orchids to jump the hedge from nature reserves and regain lost territory. But there have also been losses, and the last remaining lesser butterfly orchids are on a knife-edge. He suggests that agri-environment schemes have not achieved the best integration of farming and biodiversity. This chimes with the broader argument that we need farming systems which respect nature, rather that agri-environment schemes which try to ameliorate the damage done by ones that don't.

One thing is certain. We can only tackle the effects of rising human demands on the natural environment together. Two articles provide examples of what can be achieved by partnerships between, for example, local government, businesses and farmers. The results make for encouraging reading, and deserve recognition.

James Robertson

Sam Holden

Farming with the grain of nature

Historically, habitats of the greatest value for wildlife were largely the by-product of farming decisions. It is a recent phenomenon that farming has been able to eliminate wildlife and use land as a feedstock for an industrial process. As a result, nature conservation has adopted protectionist measures to conserve bits and pieces of habitat, and has become separated from farming. PATRICK HOLDEN, Director of the Soil Association, argues that this separation is unhealthy, and what is needed is a sustainable approach to farming which can deliver both food and nature.

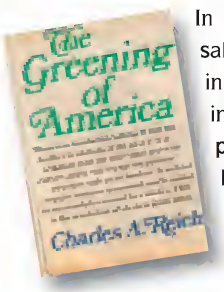
Ayrshire cattle at Bwlchwernen Farm

Back in 2005 when David Miliband was still Secretary of State for DEFRA and well before he became elevated to Foreign Secretary, he famously referred to eating organic food as a 'lifestyle choice'. In doing so he unwittingly drew attention to a major misunderstanding about the benefits of organic farming, particularly in relation to the environment. If there is one simple point that I want to make in this article, it is that the best way to promote wildlife is to change the way you farm.

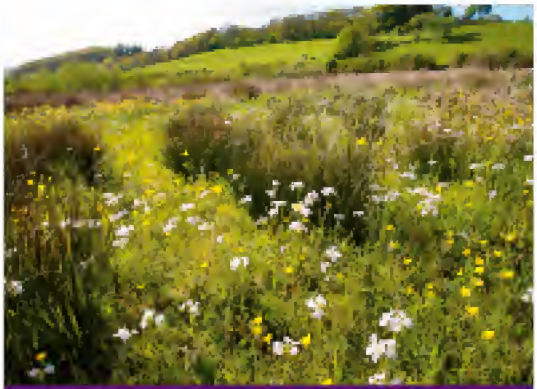
I should know, because I first started farming organically back in 1973, long before there was any structured market for organic food, or even standards – at least for livestock. When we arrived at Bwlchwernen Fawr, the motive behind the decision made by me and my six fellow communards was environmental sustainability.

The influences behind this were connected to my childhood and adolescent holidays in wilderness places: the Cornish coast, Dartmoor and the

Scottish Highlands and Islands. These early strong impressions of nature, plus a holiday on the farm of a cousin in Essex when I was around 12, persuaded me intuitively that nature conservation and food production should not be separated, although of course I couldn't have articulated that idea when I first went into farming.



In 1971 my father took a sabbatical as a visiting professor in California where I was further influenced by the ideas of that period, particularly Charles Reich who wrote *The Greening of America*. I returned to England determined to put my



Richard Becker

Organic farm pasture

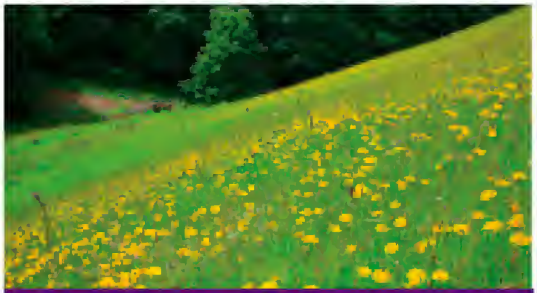
environmental principles into practice in a rural agricultural setting. I answered an advertisement in the *Hampshire Chronicle* and worked on an intensive dairy farm near Bishops Waltham for a year, where the nitrogen fertilizer was applied like snow and no clover or wild flowers could possibly coexist with the aggressive perennial rye grasses. I then studied biodynamic agriculture at Emerson College for a year before migrating to west Wales.

Getting it together

From the beginning, our objective was to farm organically – i.e. sustainably – and avoid the use of chemical fertilizers and pesticides. During the last 36 years we have stuck to these principles at Bwlchwernen. Because we were 'early adopters' there was no incentive government grant or other public purse inducements to farm less intensively. As a result, we were having to compete against neighbouring producers who were pouring on the fertilizer and producing commodity milk selling to the Milk Marketing Board at guaranteed prices. Pretty soon it became apparent with our 30 relatively low-yielding Ayrshire cows that, financially speaking, we were handicapped and that we would need to increase our returns from the market place if we were going to survive.

And so it came to pass that around 100 of this new generation of organic farmers and growers got together and decided to build the market for organic food. Our idea was that if we wrote down a prescription of sustainable farming practice – more or less on the back of an envelope – and took our story to the

Richard Becker



Flower-rich organic grassland

consumer they would support us. Because there were no dairy standards, I was one of a small group of producers who wrote the early drafts of the organic livestock standards, which have now found their way into the UK, EU and international standards framework.

The rest, as they say, is history. Everyone is now aware of the success story of the organic market, although the recent recession has challenged the depth of consumers' willingness to support organic farming in the marketplace. The rise in the demand for organic food has changed the landscape for food producers, opening up opportunities to experiment and to sell directly to the public. It has released a wave of enterprise within the farming community, and built a powerful bridge between producer and consumer. It is a step on the road to restoring the historic link between nature and farming.

Agri-environment schemes

The underlying problem is that industrialisation of agriculture has led to a separation of food production from environmental protection. Once it became apparent that these practices, based on large applications of nitrogen fertilisers to stimulate plant growth and the suppression of weeds, pests and diseases with a range of pesticides, had a devastating effect on wildlife diversity it became necessary to invent the concept of stewardship payments. A whole raft of nature conservation schemes under the EU umbrella of agri-environmental programmes, and currently available in Wales through the Tir Gofal and Tir Cynnal schemes (to be swept up in the new Glastir scheme), offer farmers inducements either to farm less intensively or to physically isolate specific areas for nature conservation programmes.

These nature stewardship schemes have been conceived, designed, promoted and assiduously monitored by all the major conservation organisations. CCW, RSPB and The Wildlife Trusts have led the public advocacy for these programmes, but the great unfolding tragedy is that collectively all they have managed to do is to mitigate some of the damage done by most conventional farming practice.

Even in programmes like Tir Gofal, where a more integrated approach is applied, there is still a separation between the fields where there are more

Richard Becker

draconian restrictions on agricultural practice and those where fertilisers, silage making and normal unrestricted farming operations are permitted. The result has been a totally artificial separation of 'food factory' areas of the farm and the nature conservation areas. And if you talk to farmers whose holdings are included in these schemes they will privately admit that they are frustrated by the restrictions that have been imposed on them in the conservation areas.

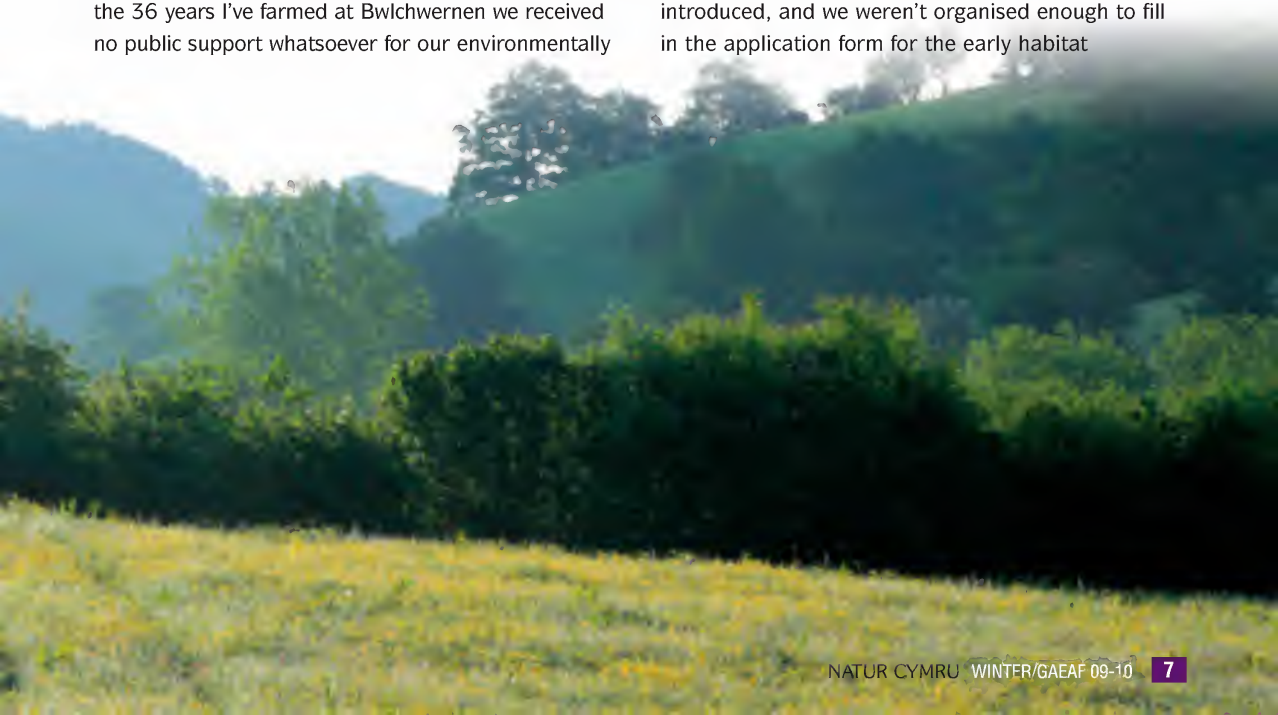
Take my own farm. We are in a Tir Gofal scheme and are receiving extra payments for the management of the boggy, silty fields, which include restrictions on drainage, mole ploughing and mowing before 15 July, and grazing intensively. The result is that I'm fighting a losing battle to stop these fields reverting to boggy conditions dominated by soft rush, where liver fluke can thrive and the nutritional benefit derived from the pastures by my dairy cows is marginalised.

Sam Holden

The Holden family's award-winning organic cheddar

Reconciling farming and nature conservation

If nitrogen fertiliser-based farming continues to be the predominant approach it will remain essential to have protected areas which escape the environmental consequences of these practices. But I want to argue for a completely different approach. For over 20 of the 36 years I've farmed at Bwlchwernen we received no public support whatsoever for our environmentally sustainable practice, so all the nature conservation outcomes were achieved by default. That was because we started farming organically before the conversion and maintenance payments were introduced, and we weren't organised enough to fill in the application form for the early habitat



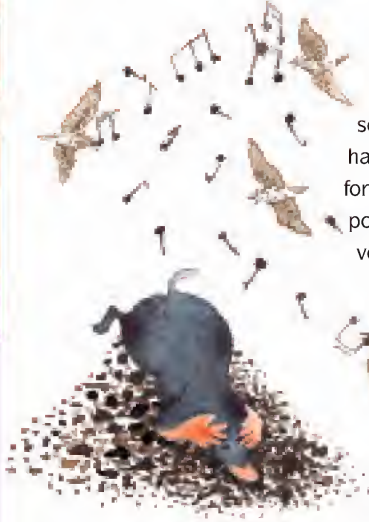
Richard Becker

Daeth yr awr.....

Ers yn ifanc, cyn y gallai fynegi'r hyn a deimlai, gwyddai Patrick Holden na ddylid gwahanu cadwraeth natur a chynhyrchu bwyd. Ac ers 36 mlynedd o ffermio Bwlchwernen, ger Llambed, mae wedi glynu at ei egwyddorion o ffermio'n gynaladwy h.y. yn organaidd. O'r dyddiau cynnar, pan ddaeth cant o gynhyrchwyr at ei gilydd i greu marchnad gystadleuol ar gyfer bwyd organaidd, bu'n stori o lwyddiant masnachol ac o welliant amgylcheddol, fel y tystia'r llu o adar a blodau gwyllt ym Mwlchwernen.

Oherwydd i ffermio dwys ddifrodi bywyd gwyllt y dyfeisiwyd taliadau gofal tir. Yn anffodus, er y brolio a'r monitro, y cyfan mae'r rhain wedi gwneud dros 40 mlynedd yw gwrthbwyso'r niwed sy'n dal i ddigwydd drwy ffermio'n gonfensiynol y tu hwnt i'r ardaloedd hyn. Mae hyd yn oed Tir Gofal yn dal i wahanu'r 'ffatri fferm arddwys' oddi wrth yr ardaloedd cadwraeth.

Mae'r awdur yn dadlau o blaid trefn newydd o amaethu sy'n golygu ffermio 'gyda'r graen', sef gyda natur, ac sydd hefyd yn golygu creu rhaglenni addysg sy'n dangos i blant bod cadwraeth natur yn rhan o ffermio, nid yn rhywbeth ar wahân. Byddai trefn o'r fath yn lleiahau, os nad yn diddymu'r angen i warchod cynefinoedd a chynnal cynlluniau amaethyddol ac yn cynyddu parch y cyhoedd at ffermwyr.



scheme... Although more recently we have been taking the King's shilling, both for Tir Gofal and organic payments, a key point is that both before and after our venture into the nature stewardship payment era, the environmental outcome has been brilliant.

Take a walk round our farm and it is immediately obvious, to me at least, that food production and nature conservation are working together in harmony. The bird song is amazing, even at times deafening! We have an incredible diversity and volume of avian, insect, amphibious, wildflower and mammal populations, including bats, and these have increased progressively during the 36 years that we have been farming in the way that we do.

The consequences of the intensification of agriculture have not only been to dramatically reduce wildlife populations but also to promote a deeply unhealthy schism between food producers and the nature conservation movement. The birth and development of stewardship schemes has to an extent been a reconciling factor but in my view we have to go much further – we have to return once again to farming with the grain of nature. We must also have school education programmes so that when children go on the farm they learn about nature conservation with true farming, not separate from it. If we go down this route I'm not suggesting this removes any necessity for habitat protection or stewardship schemes, but I am saying that the cost of such programmes would reduce dramatically; and the respect in which the public holds the farming community would increase, as would their willingness for some of their taxes to go towards habitat protection.

***Patrick Holden** is Director of the Soil Association. His organic vegetable and dairy farm in mid-Wales is the source of Hafod, an award-winning Welsh cheddar cheese.*

Montane rescue!
A threatened habitat

Barbara Jones

Pen yr Ole Wen - grazing the summit vegetation

The montane heaths on the tops of our highest mountains are a rare and precious habitat, on which all manner of conservation designations have been bestowed. None of them seem able to stop the conversion of this magical dwarf heath to wildlife-poor acid grassland, mainly as a result of grazing pressure. ***BARBARA JONES*** *makes a plea for something to be done.*

When you are walking on the tops of our mountains the last thing you usually want to do is to look down at your feet – other than to avoid falling over. The views, the open sky, the majesty and all too often the driving rain keep your eyes and thoughts away from what your feet are trampling on. This is a great shame, because underfoot is one of the most important and threatened habitats in the UK. Right on the very exposed, open summits is a marvellous mix of tiny plants with a few heath species, mosses and lichens, and including our smallest tree. These are all grazed by sheep and soaked by whatever pollutants the rain and clouds carry, and they brave some of the most extreme conditions our climate can throw at them.

But before you get down on your hands and knees to look, let's take a step back. We aren't talking about any old mountains here, just the ones which are high enough and with enough of a plateau to support this type of vegetation. We are talking about the exposed summit areas on mountains such as the Cairngorms, Ben Nevis, Skiddaw, and the Carneddau in Snowdonia, often so exposed that you wonder how anything can survive there.

Ray Woods

Woolly hair moss *Racomitrium lanuginosum*

This 'montane' habitat includes a number of types of vegetation, all with prostrate or low growing plants. You will see woolly hair moss *Racomitrium lanuginosum*, with its fringes of silvery hairs; light green *Cladonia* lichens standing out from the background; short stiff sedges, particularly *Carex bigelowii*; dwarfed heather and bilberry; and, if you look closely enough, *Salix herbacea* the dwarf willow, a tiny tree no higher than a few centimetres, keeping its head down and growing along the ground. You may see it supporting what look like bright red berries – berries on a willow? Not an evolutionary development by this tiny tree, but a gall arising from the sawfly *Pontania crassipes*. This is an arctic species and in Britain its only host plant is dwarf willow.

A fragile habitat

Although it has none of the glamour of habitats like rainforest, we do need to be concerned about this mountain top habitat. Its fragility means that it has been badly damaged over the years from overgrazing (especially by sheep), localised recreational impact along ill-defined footpaths, atmospheric nitrogen deposition, and possibly climate change too. All these combine to damage the vegetation cover so that important species are lost and common grasses can invade, or the soil is so exposed that it is eroded away. In these days when we need good management of carbon and water resources, loss of soil and vegetation cover should be avoided at all costs.

In the UK this vegetation is best represented in Scotland. In Wales and England examples tend to be small, fragmented and more degraded, and are largely confined to the highest mountains – Wales holds less than 1% of the UK total. The most extensive examples occur on the tops of the Carneddau, on the summit areas of Pen yr Ole Wen,

Carnedd Dafydd, Carnedd Llewellyn and Foel Grach. These are the most southerly examples in the UK, right on the edge of their range. This increases their importance, as edge-of-range habitats and species are often the first to respond to the effects of environmental change and so can act as early indicators of more widespread change in future years.

The noted ecologist Derek Ratcliffe studied these heaths in Wales back in 1953, recording the frequency of species in a number of quadrats on the Carneddau summits. This was repeated in 1993 and 2003 by Alex Turner and the results showed a deterioration in condition with decreasing numbers of key species, particularly the shrubby lichens which characterise this habitat, and an increase in more widespread grasses and bryophytes. This montane heath is being converted to acid grassland – and we have no shortage of that in our British uplands!

Barbara Jones

Pen yr Ole Wen - degraded heath

The impacts of grazing

In 2003 and 2004 research (see References) on the links between species composition, grazing impacts, nitrogen pollution and the nitrogen status of these Carneddau communities, tried to ascertain whether overgrazing is the most likely factor in their decline and whether a reduction in grazing levels might result in their restoration. The studies found that *Racomitrium*-dominated communities can survive under the current atmospheric nitrogen deposition regime, and so reduction or removal of grazing should aid conservation and restoration of the more degraded areas. This research is continuing on a UK and North European basis.

Some of the montane heaths in Wales are now in such a degraded state that if protection measures are not implemented in the near future we may lose this important habitat. We know from the research what is required practically: reduce grazing. However, the will and support to make difficult decisions have so far been lacking. Remedial action

Ray Woods

Dwarf willow *Salix herbacea*

Ray Woods

Lichen *Cladonia rangiferina*

Andrea Britton

Lichen *Cladonia arbuscula*

is urgently needed to prevent irreparable damage to the degraded sections, together with a long-term strategy for future management when recovery has been achieved.

These two approaches must go hand-in-hand. They need to involve management agreements with landowners to reduce grazing pressure – and this has already happened on the common land and on individual farms supporting this habitat. However, even reduced numbers of sheep are still having a damaging effect. Fencing out the most severely degraded areas to remove grazing altogether for a number of years would be the most effective measure we could take, and for one area is probably its only hope of survival.

These are not easy options, and landscape and access issues need to be considered alongside the ecological necessities. The land involved is among the most valued areas of perceived 'wilderness' in Wales, and initial discussions have revealed some antipathy to the idea of fencing on even small parts of some of our summits. However, consider the alternative – mountain tops becoming a desert of eroding soil and exposed bedrock. This is already the case on a number of mountains; just look at the top of Kinder Scout in the Peak District, or Snowdon. How natural are these summits and are we happy for this damage to spread? It need not, if we are prepared to accept some localised intrusion for a number of years to allow the scars to heal.

A temporary phase

Any fencing would be temporary until such time as the habitat has recovered and agreements are in place to ensure its future survival. At that time, the fences should be dismantled and removed. The location of any fencing is critical, but it should be possible to site one or two sizeable grazing exclosures away from the main ridge in such a way that they would have little visual impact and access on the main footpath would not be affected. In the meantime, monitoring is continuing by means of upturned hanging baskets (honestly!), which act as mini exclosures in the degraded areas to demonstrate, on a small scale, the effects of grazing removal.

This montane vegetation is included in Annex I of the European Habitats Directive and is a feature of the Eryri Special Area of Conservation and SSSI. Furthermore, due to its restricted distribution, and to the adverse effects of ongoing impacts and threats, it has recently been designated as a priority BAP habitat. The site is also in the National Park and partly owned by the National Trust. With all these designations it's hard to believe that it is still under so much threat.

We know what to do and if we don't implement these management measures in the near future, then restoration may not be possible. It may not be a rainforest, but if we lose this important habitat from our Welsh mountains our world becomes just that little bit less diverse and attractive, and any claims we have to cherishing and protecting our mountains become just that little bit suspect. Furthermore, and importantly, what does this say for the processes we

Sawfly *Pontania crassipes* galls on dwarf willow

Barbara Jones

have in place to protect our threatened habitats and species? If they can't save this relatively small area, then what does this say about the prospects for restoring biodiversity in the rest of Wales!

***Barbara Jones** is the Countryside Council for Wales's Upland Ecologist.*

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Barbara Jones

Racomitrium moss

Montane heath on Pen yr Ole Wen, Carneddau

Pryder ar y copaon

Faint o gerddwyr brwd sy'n sylweddoli, wrth ddyrchafu eu llygaid tua'r mynyddoedd, eu bod yn troedio un o gynefinoedd prinnaf a mwyaf bregus Prydain? Ar rai o'n copaon mwyaf uchel a gerwin mae cymysgedd ryfeddol o blanhigion corachaidd, yn cynnwys ein coeden leiaf, yn goroesi ar waethaf y tywydd eithafol, y defaid barus, y troedio cyson a'r llygredd nitrogen.

Yn garped llwydwyrdd isel o fwsogl blewog, cennau, hesg bychain, grug a llus a llwyni'r helygen fach, nid yw'r cynefin mynyddig hwn yn apelio fel y fforestydd glaw mawreddog. Ond mae'n un o gynefinoedd pwysicaf Ewrop. Alban yw'r cadarnle yn y DU; dim ond 1% ohono sydd yng Nghymru a hwnnw i gyd ar gopaon y Carneddau.

Barbara Jones

Er bod y rhain o fewn Parc Cenedlaethol ac ar dir yr Ymddiriedolaeth Genedlaethol, mae'n gynefin dan fygythiad. Mae pori, hamddena, a newid hinsawdd yn achosi erydiad pridd ac yn annog lledaeniad gweiriau cyffredin ar draul y gweundir mynyddig. Rhaid gweithredu'n gyflym os am arbed yr uchelfannau hyn rhag troi'n anialdir noeth o bridd a chraig - fel copa'r Wyddfa.

Gwyddwn mai pori, nid llygredd, sy'n bennaf gyfrifol am y niwed. Felly rhaid atal pori'n gyfangwbl, am gyfnod, yn y mannau hyn. Ac er bod rhaid cydnabod y tirlun a gofynion cerddwyr wrth leoli ffensys, onid yr angen i warchod un o'n cynefinoedd prinnaf yw'r ystyriaeth bennaf bellach?

Gaynor Ainscough

Mission nearly impossible -

saving the world from climate change

Tackling climate change has become the subject of high level World Summit politics. Can ordinary people have any part to play in this? A group set out from Wales to try to influence the politicians. ***VICKY MOLLER*** *recounts how Welsh mums, dads and toddlers talked to the negotiators of world agreement.*

There we were, mums, dads and toddlers from Wales, walking in a huddle through the cathedrals of power in Brussels. The European Parliament is glassy, spacious and fast moving. Intelligent trendy-looking people swirl in and out of meetings with a glittery subdued intensity.

We had prepared for weeks – I, as the organiser in Wales, had done nothing but, and been sleepless with adrenalin. We wanted to stop runaway climate change and this seemed our best chance to influence events before it was too late, before the December world summit in Copenhagen. We had a packed programme, non-stop conferences and meetings.

What we brought to the table was simplicity and common-sense: if we don't stop climate change, with the likelihood of it being unstoppable after four degrees of warming, we can expect an almost uninhabitable earth. This then has to be the overwhelming priority of all our efforts at this time. We have made it ours: we asked how it ranked in the priorities of those we met.

Of course this was not enough to bring to the table; we had spent the lead up to our visit researching what was being done, what was being proposed, what the barriers and blockages were, and what were the choices on the table. For our group this meant snatching time when children were asleep or when the thesis had been posted, or between organising meetings with community groups. It was a big ask to be ready to talk to European government. We were anxious.

Matthew Ellis

Flooding in Newtown, August 2009

A hectic schedule

Jill Evans, Plaid MEP, had organised and re-organised the meetings in Brussels to iron out all the clashes, and was sponsoring us. Over three days we met with her, the other three Welsh MEPs, UK's Green MEP Caroline Lucas, the Scottish nationalist MEPs - as they and Plaid are part of Europe's green alliance - and the European Environment Agency. We finished with two meetings with powerful EU commissioners. One meeting was with members of Europe's climate strategy and negotiating team for a world agreement – the highest level meeting we had.

We also attended a video conference with the secretary of UNFCCC (the UN Framework on Climate Change) Yvo de Boer, the man at the centre of world negotiations. We did not talk to him but were sitting with the people asking him questions. I took part in the European Greens' discussion and we were guests at a conference of the regions, chaired by Welsh minister Jane Davidson. Everything we went to was addressing the one subject facing the world – stopping climate change destroying our planet.

So how did we do? Was it worthwhile? How do we feel now about our chances – the world's and our own in influencing things?

I felt we did everything we possibly could to get across the urgency and the popular support for action. We worked as a group with everyone contributing something different, and we were diverse! We got a lot of encouragement and appreciation for our stand from those we met. I emphasised the need to stop extracting fossil fuels for burning. Without doing this we would fail, no matter what else we did. If we did this we would be 60% of the way there. This is a simple, if crude proposal. We had with us a detailed treatise on how this could be achieved, Oliver Tickell's Kyoto 2. We explained that we were not there to promote this method, but to offer it as an example of a worked up proposal to wean us from fossil fuels within the time necessary to save the planet. People took his book.

We noted the influence of commercial lobbyists on those we met as they repeated the promotional material of GM, nuclear, carbon capture and storage, and the 'after you' syndrome. One fallacy we found prevalent was the assumption that we need to live in more or less the same way as we do now, just a bit more efficiently, and had to find technologies that

Gaynor Ainscough

Greenland's retreating glaciers

allowed this to happen before reducing fossil fuel use. We did our best to explain the rewards and popularity of powering down, of living on less stuff. Rewards like reliance on one's community instead of the global economy to meet basic needs for food, trade, entertainment, wellbeing, energy. Maybe people would only believe this if they experienced it, or saw a corporate powerpoint presentation on it.

Switched on and switched off

The most encouraging and challenging meetings were with the commissioners. It was a revelation to find such highly intelligent motivated people, parents of young children themselves, utterly dedicated to stopping climate change through the methods at their disposal. "I am a mother too," said Marion Infeld with suppressed emotion. She had designed and tightened the emissions trading scheme since 2003, and within a closed system like the EU saw it working. We might not agree that these were the best methods, but we were in no doubt of the level of commitment and ability in these people. Some of us felt too ignorant to offer them a worthwhile dialogue, and a little uncomfortable about this. The two negotiators were particularly switched on and determined. They showed admiration for the way we lived a low carbon life at home as they felt it was at local level that the breakthroughs would come.

Rather different was the meeting with the Welsh MEPs who were Labour, Tory and UKIP. We felt their points were not relevant to the subject, or very marginal to it, and the contrast with the switched on commissioners made us distinctly embarrassed by our native country's representatives.

We had hoped to fire them up with the possibility of Wales striding ahead to de-carbonise, not waiting for the UK or anyone else. The discussion was too random to say with certainty what, if anything, came out of it. However the MEPs were warm and welcoming and we felt this meeting was a beginning and we needed to get to know and talk to them individually, as they clearly sang from discordant song sheets.

Throughout our meetings some themes emerged. The blockage in world agreement is to do with psychology: countries allergic to being told what to do, or *It's your fault, you fix it* versus *We all share responsibility*. This is a *We won't if you won't* mentality which was described by Yvo de Boer and others as "a race to the bottom". The chinks of light

and hope came most strongly from the regions and individual nations taking independent action, and forming themselves into alliances and networks without the baggage of the blocs. This fitted well with our dream of Wales taking the initiative. Jane Davidson (Welsh Minister for the Environment, Sustainability and Housing) made powerful speeches at the conference of the regions extolling this sort of approach.

We were praised and mentioned and filmed for ITV Wales and BBC Wales. This and the fact that we got all the meetings we had asked for, and more, made us feel that what we had done was rare and important. Having some of our children there made us memorable. I asked Councillor Sue Hutchinson, mother of three, if she felt like doing more. She said "I now feel that it is alright to neglect my garden and home for the moment. I feel it is right that I am setting straight off again after coming home. My body and spirit are crying out to stay at home, but I am packing for the next, it is full time and full on, just for now."

Michael D Smith

Are we any more likely to avert catastrophe?

Our views were mixed but in general more positive than when we set off. Yvo de Boer said: "China has become the biggest polluter and is making the biggest efforts to mitigate. I feel they will come to the table with the figures and commitments we need. I think they will surprise us." He felt strongly that the Copenhagen meeting should be seen to succeed in order to encourage the next steps. "Otherwise we will be left with nothing." But "Negotiations for further cuts should start almost the next day... We need a different architecture for world government," he said meaningfully.

***Vicky Moller**, a regular past contributor, brought up five children on a smallholding and is active in local 'green' politics in Pembrokeshire.*

Codi llais yn Ewrop

Nid ar chwarae bach mae grŵp o rieni a phlant, sydd â'u bryd ar atal newid hinsawdd, yn penderfynu mynd â'u hachos at lygad y ffynnon wleidyddol ym Mrwsel.

Teimladau cymysg sydd am lwyddiant y fenter. Cafwyd digon o anogaeth o du'r gwleidyddion. Ond roedd dylanwad y lobïwyr masnachol i'w weld a thybiaeth amlwg bod rhaid cynnal ein safonau byw presennol – yn hytrach na byw ar lai, a byw'n wahanol.

Roedd ymrwymiad unigolion at atal newid hinsawdd yn ganmoladwy er na chytunwyd o reidrwydd â'r dulliau. Edmygwyd penderfyniad a deallusrwydd y tîm sy'n negodi cytundeb byd–eang a gwerthfawrogwyd eu hedmygedd hwythau o fywyd carbon-isel y criw o Gymru.

Niwlog, di-gyfeiriad a di-ganlyniad oedd y trafodaethau gydag aelodau Seneddol Ewropeaidd Cymreig (Llafur, Ceidwadwyr ac UKIP). Ni lwyddwyd eu tanio gyda'r syniad o greu Cymru flaenllaw, di-garbon. Ond roedd gwerth mewn sgwrsio gyda hwy fel unigolion oedd ag agweddau tra wahanol.

Dysgwyd mai seicoleg sy'n gyfrifol am atal cytundeb byd-eang; gwledydd yn amharod i derbyn cyfarwyddyd neu'n aros i eraill weithredu'n gyntaf. Gwelwyd mai rhanbarthau a chenhedloedd unigol a weithredai'n annibynnol neu fel rhwydweithiau a chlymbleidiau oedd yn cynnig y gobaith pennaf.

Er cymysg y profiad, daeth y criw nôl o Frwsel yn teimlo'n fwy positif bod 'na ewyllys ymhlith gwleidyddion i weithredu, ar waethaf y rhwystrau a'r rhwystredigaethau.

Dafydd Fryer

Biosffer Dyfi

Man cwrdd rhwng mynydd a môr - tirlun Dyffryn Dyfi
Meeting place of coast and countryside - the Dyfi Valley landscape

Ar ôl pum mlynedd o waith caled dyfarnwyd eleni bod ardal Bro Ddyfi yn haeddu statws rhyngwladol fel Biosffer - gan adlewyrchu'r dyhead lleol i blethu addysg, datblygiad a chadwraeth amgylcheddol o fewn un ardal ddaearyddol. Cafodd darn o'r ardal ei ddynodi'n Fiosffer nôl yn y 1970au ond daeth cyfle i gael ail-wynt a dechreuad newydd. Biosffer Bro Ddyfi yw'r unig ardal o'r fath yng Nghymru, ac mae bellach yn perthyn i rwydwaith helaeth o ardaloedd tebyg drwy'r byd. HELEN HOWELLS sy'n egluro'r cefndir a'r cynlluniau.

Cawsom wlad i'w chadw,
Darn o dir yn dyst
ein bod wedi mynnu byw[1]

Perthynas unigryw rhwng y ddaeareg, hinsawdd a phlanhigion sydd wedi sefydlu cartref i bobl yn nyffryn yr afon Dyfi. A dylanwad dynolryw ar y tir o'n hamgylch sydd wedi creu'r dyffryn yr ydym yn ei adnabod heddiw.

Daw myfyrwyr daearyddiaeth o bob rhan o Brydain i'r llecyn hwn er mwyn gallu gweld ac astudio'r gweithgaredd geomorffolegol sydd wedi bod yn saernio ffurf arbennig y dyffryn dros y fil o flynyddoedd diwethaf.

Ond nid y ddaeareg ac elfennau naturiol y Ddyfi, yn unig, sy'n gyfrifol am hynodrwydd yr ardal hon. Mae dyffryn yr afon hefyd yn ganolbwynt i hanes a diwylliant Cymreig y dalgylch hwn. Yn draddodiadol ystyrir bod Dyffryn Dyfi a thref Machynlleth yn nodi'r man cyfarfod rhwng De a Gogledd Cymru a'r trothwy i Barc Cenedlaethol Eryri. Dyma i chi fro, lle mae'r môr yn cwrdd â'r tir a mwynder yr iseldir yn troi'n aruthredd mynyddig, sydd yn cyfleu 'Calon Cymru' yn fwy na'r un ardal arall drwy'r wlad. Pa ryfedd mai yn y fan hon y lleolwyd Senedd Owain Glyndŵr, y

mab Darogan, a'r gŵr cyntaf yn hanes Cymru i ennill cefnogaeth de, gogledd, dwyrain a gorllewin y wlad gan uno pob cwr o'r genedl?

Y cyfoeth diwylliannol hwn sydd efallai'n symbylu trigolion Bro Ddyfi i frwydro dros warchod eu cynefin. Mae dynodiad diweddar y Dyfi fel Biosffer, sy'n gosod yr ardal yn yr un garfan ag ardaloedd dynodedig eraill megis Uluru a Mount Olympus, yn arwyddocâd o frwydr newydd i warchod yr hyn sy'n arbennig am y dyffryn.

Mae dyfodiad Biosffer Dyfi yn cynnig cyfle i gydweithio er mwyn sicrhau y gall Bro Ddyfi. gyda'i chynefinoedd amrywiol a'i diwylliant gref, barhau i roi cynhaliaeth i genedlaethau o Gymry sydd eto'i ddod. Etifeddiaeth gadarn i sefydlu dyfodol ar gyfer plant yr ardal. Dyfodol a fydd yn cynnwys cymdogaethau Cymraeg sy'n ffynnu, a math o frogarwch sy'n ail-gysylltu dyn â'i gynefin fel bod pobl yn gallu adnabod, gwerthfawrogi a gofalu am bob agwedd ohoni.

Drwy gasglu teimladau a phryderon bobl leol am yr ardal mae Partneriaeth Biosffer Dyfi yn gweithio er mwyn i Fiosffer Dyfi gael ei adnabod yn rhyngwladol, yn genedlaethol ac yn lleol am amrywiaeth ei harddwch naturiol, ei threftadaeth a'i bywyd gwyllt, ac ymdrechion ei phobl i wneud cyfraniad positif tuag at fyd cynaliadwy.

Beth yw Biosffer?

Mae Biosffer yn ardal sydd wedi'i dynodi gan UNESCO(3), sef Sefydliad y Cenhedloedd Unedig dros Addysg, Gwyddoniaeth a Diwylliant, dan raglen Dyn a'r Biosffer, er mwyn arloesi ac arddangos agweddau ar gadwraeth a datblygiad cynaliadwy. Mae'r ardaloedd arbennig yma yn ffurfio rhwydwaith rhyngwladol o 553 ardal Biosffer dros 107 o wledydd, a Biosffer Dyfi yw'r unig ardal o'r fath yng Nghymru.

Enwebir ardaloedd Biosffer gan lywodraethau lleol ac er mwyn cwrdd ag amcanion modern Biosffer UNESCO, mae'n rhaid i'r Biosffer gyflawni tair swyddogaeth sy'n atgyfnerthu a chyflawni ei hamcanion llawn.

Dafydd Fryer

Nodwedd ddiwylliannol amlwg yn nhirlun y Biosffer, ar dalcen argraffdy'r Lolfa yn Nhalybont
One of the Biosphere's distinctive cultural landscape features - the Lolfa mural in Talybont

- Swyddogaeth Gadwraethol - Cyfrannu at gadwraeth tirluniau, cyfundrefn ecolegol a rhywogaethau unigol
- Swyddogaeth Ddatblygol - i feithrin datblygiad dynol gan ofalu ei fod yn gydnaws â chynnal elfennau diwylliannol a naturiol yr ardal
- Swyddogaeth Cefnogi Logistaidd - cefnogi ymchwil, monitro, addysg a rhannu gwybodaeth yn ymwneud â chadwraeth a datblygiad ar lefel leol, cenedlaethol a byd-eang.

Strwythur Biosffer

Er mwyn cyflawni eu hamcanion caiff Biosfferau eu rhannu'n dri math gwahanol o ardal. Mae Ardaloedd Craidd yn cael eu diogelu'n ofalus er mwyn gwarchod amrywiaeth biolegol, monitro cyfundrefn ecolegol a chyflawni ymchwil gwyddonol hirdymor fel y gellir dysgu am ddibyniaeth cymunedau lleol ar eu hardal graidd. Mae Ardaloedd Ffiniol yn cael eu dynodi'n ofalus, ac maent yn aml yn ffinio ag ardaloedd craidd; bwriedir iddynt gael eu defnyddio ar gyfer gweithgareddau cydweithiol sy'n sensitif i anghenion ecolegol megis addysg amgylcheddol, gweithgareddau

hamdden ac eco-dwristiaeth. Nodweddir Ardaloedd Pontio gan ddefnydd amaethyddol, anheddau cymunedol a gweithgareddau perthnasol sy'n cael eu rheoli gan gymunedau lleol, mudiadau rheoli, gwyddonwyr, cyrff cyhoeddus, grwpiau diwylliannol, busnesau a budd-ddeiliaid eraill mewn partneriaeth i sicrhau defnydd cynaliadwy o adnoddau'r ardal.

Ardaloedd Biosffer Dyfi

Ardal Graidd: Mae'r ardal graidd yn cwmpasu tair Ardal Gadwraeth Arbennig a warchodir dan ddeddfwriaeth Ewropeaidd gan gynnwys Cors Fochno, Coed Cwm Einion a rhan o Ardal Gwarchod Arbennig Pen Llŷn a'r Sarnau.

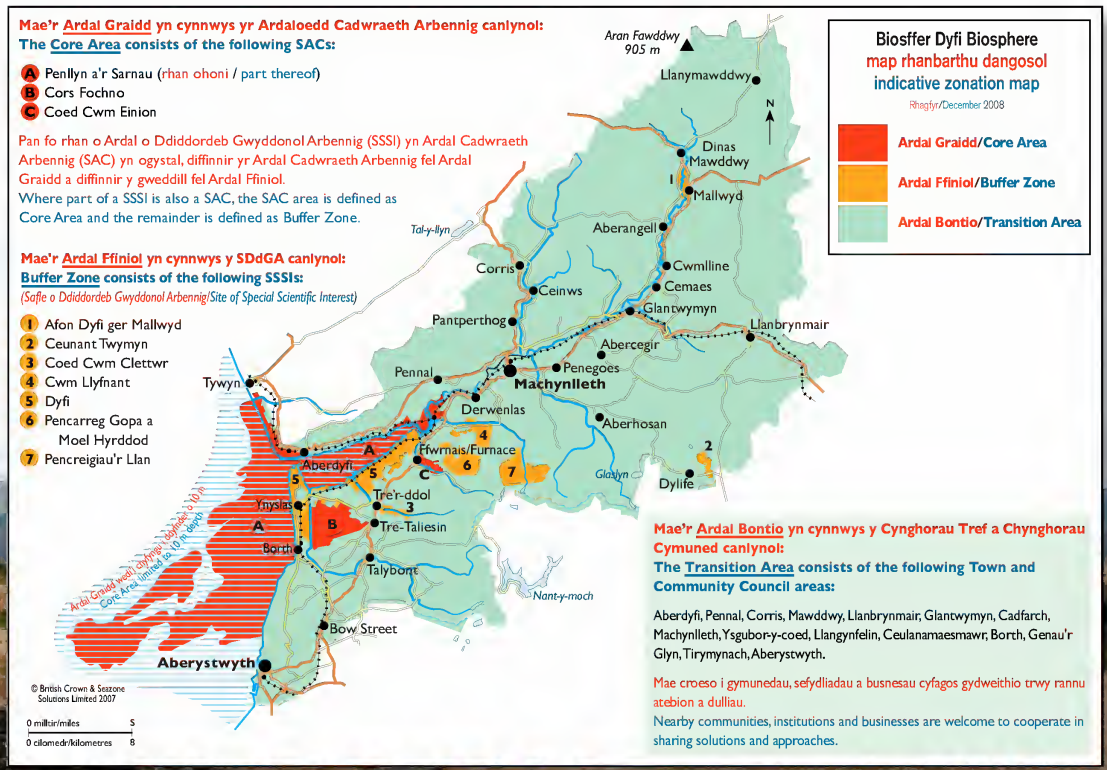
Ardaloedd Ffiniol: Dynodir y saith Safle o Ddiddordeb Gwyddonol Arbennig mwyaf yn y Biosffer fel ardaloedd ffiniol. Mae'r rhain yn cynnwys yr Afon Dyfi, Ceunant Twymyn, Coed Cwm Clettwr, Cwm Llyfnant, Pencarreg Gopa a Moel Hyrddod a Pencreigiau'r Llan. Gwarchodir yr ardaloedd yma dan ddeddfwriaeth Brydeinig.

Ardal Bontio: Mae'r ardaloedd a gynrychiolir gan y Cynghorau Cymunedol a Chynghorau Trefol canlynol wedi eu cynnwys: Aberdyfi, Pennal, Corris, Mawddwy, Llanbrynmair, Glantwymyn, Cadfarch, Machynlleth, Ysgubor-y-Coed, Llangynfelin, Ceulanmaesmawr, Borth, Genau'r Glyn, Tirymynach ac Aberystwyth. Croesawir cymunedau, sefydliadau, a busnesau cyfagos i gydweithio at gyflawni amcanion yr ardal.

Beth mae hyn yn ei olygu yn lleol?

Sefydlwyd Partneriaeth Biosffer Dyfi yn 2005 er mwyn cychwyn y broses o ail-ddynodi'r Dyffryn arbennig hon fel Biosffer modern. Bu rhan helaeth o'r ardal graidd, sef Cors Dyfi a'r ardal gyfagos, yn Fiosffer ers y 1970au ond dim ond ers 8fed Fehefin 2009 y mae'r ardal ehangach o fewn dalgylch yr afon Dyfi wedi'i dynodi.

Ar y cychwyn roedd Partneriaeth Biosffer Dyfi yn cynnwys trawsdoriad o asiantaethau cyhoeddus a mudiadau lleol a oedd yn cyd-weithio i gydlynu'r



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broses ymgynghorol gyda'r cymunedau lleol fel rhan o'r gwaith i baratoi enwebiad i UNESCO. Fodd hynny, ers y cychwyn cyntaf, amcan y bartneriaeth oedd dylai Biosffer Dyfi gael ei reoli gan bobl leol er budd pobl leol. Fel cam yn nes at yr amcan yma, ac yn dilyn penderfyniad UNESCO yn ystod haf 2009 i dderbyn enwebiad Dyffryn Dyfi i ymuno â'r rhwydwaith fodern o ardaloedd Biosffer y Byd, cynhelir Cyfarfod Cyffredinol cyntaf y Biosffer ym mis Tachwedd 2009 i lunio Partneriaeth Biosffer Dyfi ar ei newydd wedd. Yn ystod y cyfarfod bwriedir cynnal etholiad i sicrhau cynrychiolaeth dda o leisiau lleol i'r Bartneriaeth.

Partneriaeth Biosffer Dyfi sy'n cael ei gydnabod fel y canolbwynt i weithgareddau'r Biosffer a'r corff sy'n arwain yr ymdrechion i gyflawni'r amcanion ar gyfer yr ardal. Serch hynny, mae yna gyfle i bobl gyfrannu'n weithredol o fewn y Biosffer drwy sefydlu grwpiau diddordeb. Y mae tri grŵp o'r fath yn bodoli ers sbel fach yn yr ardal ac yn gweithio ar brosiectau yn unol ag amcanion Biosffer Dyfi. Mae rhwydwaith Addysg Biosffer Dyfi wedi cydlynu sesiynau hyfforddiant i athrawon ysgol o fewn y Biosffer ac yn gweithio i ddatblygu 'Pasbort Dyfi' at fudd ymweliadau ysgol. Mae grŵp twristiaeth y Dyfi 'Lyfi Dyfi,' wedi sefydlu gwefan ac yn edrych ar amryw o ffyrdd i ddatblygu a hybu eco-dwristiaeth yn yr ardal. Yn ddiweddar, sefydlwyd grŵp Agrisgôp i ymchwilio manteision i farchnata cynnyrch fferm o fewn y Biosffer.

Gobeithir wedi sefydliad y Bartneriaeth newydd, ceir nifer fwy o weithgareddau i ddathlu, hybu ac i ddeall yr hyn sy'n arbennig ym mhob cwr o Fiosffer Dyfi.

*Cyfrannwyd gan **Helen Howells**, Swyddog Cefn Gwlad Rhanbarth y Gorllewin, Cyngor Cefn Gwlad Cymru. Mae Helen wedi bod yn gweithio gyda Biosffer Dyfi (**www.dyfibiosphere.org.uk**) dros y ddwy flynedd diwethaf ac mae ganddi ddiddordeb mawr mewn ymchwilio i ffyrdd o weithredu datblygiad cynaladwy ar lefel leol sy'n sy'n cwrdd ag amcanion y gymdogaeth a'r ecoleg leol.*

Cyfeiriadau

1. Detholiad o Etifeddiaeth gan Gerallt Lloyd Owen, o'r gyfrol Cerddi'r Cywilydd

Dyfi Biosphere

After five years of hard work Bro Ddyfi earned its status this year as a Biosphere, reflecting local aspirations to integrate conservation, social and economic development, research and shared learning within a single geographic area. The Biosphere, in accordance with UNESCO principles, is divided into three types of area characterised by different management approaches and priorities. Together, however, they form a distinct entity. Strong collaboration will be key to realising the Biosphere vision, deepening cultural connections and a sense of place, and developing the understanding and appreciation of how local landscapes are crucial for sustaining local communities.

Some positive steps are already underway through the initiative of local people – such as the 'Lyfi-Dyfi' eco-tourism project and the 'Dyfi Passport' scheme which is being developed by a local education network to encourage outdoor school activity in the area. With the establishment of a new Partnership in November 2009 the opportunity for local involvement will continue to grow.

Dafydd Fryer

Uchelfannau gwyllt y Biosffer - lle i enaid gael llonydd
The wilder, more remote, yet accessible parts of the Dyfi Biosphere

Richard Becker

Away from the coalface

Reflections on working for Welsh wildlife

Small copper butterfly

***JULIAN BRANSCOMBE** recently moved his family from Gwent up to Orkney. A regular contributor to this magazine, he has previously written about the threat to the Gwent levels, the restoration of nature at Wyeswood Common and the wildlife and local communities of the South Wales coalfield. Here, with the benefit of a clear view from a distance, he considers the threats which wildlife faces and the tasks before the Wildlife Trusts.*

I joined Gwent Wildlife Trust in 2001 and was immediately struck by the contrasts with the conservation scene I was leaving in Nottinghamshire. To my delight, the lowest common denominator of Gwent's countryside was as good for wildlife as the best parts of the East Midlands. However, there was no Biological Records Centre, the Countryside Council for Wales seemed to have had the stuffing knocked out of it, and you had to look hard to find any part of Gwent with non-statutory Wildlife Sites (hats off to Caerphilly County Borough Council).

Welsh conservation felt a decade or two behind where it deserved to be – and where it needed to be. All the same, it was liberating being around such wildlife-rich landscapes, from the priceless Gwent Levels to the Wye Valley AONB and, perhaps best of all, the South Wales coalfield with its huge diversity of wildlife-rich land use (and disuse). And Gwent Wildlife Trust (GWT) was a growing organisation, with a striking – if little recognised – pedigree in grassland restoration.

A couple of months before I joined the Trust the organisation had

bought Springdale Farm, saving a wonderful area of grassland just above the Usk Valley from a very uncertain fate. Not only had GWT rescued these fields, it had also bought a small stock farm next door, giving a golden opportunity for habitat creation. Eight years on, bitter vetch, tormentil, bird's-foot trefoil and heath spotted orchid are spreading across these pastures – thanks to the millennial vision of GWT and the great support of its funders back then (including CCW and the Heritage Lottery Fund).

Similar success was already evident back in 2001 on some of GWT's other reserves. At these, the Trust had used Lottery funding to buy improved grassland next door to orchid meadows. A return to fertiliser-free hay cut and aftermath grazing had reduced the fertility in these fields, letting green-winged and common spotted orchids jump the hedge. One of the greatest pleasures throughout my time in Wales has been seeing these orchids multiplying and spreading, regaining their lost territory.

A losing battle?

These nature reserves are inspirational. But elsewhere, greenfield development has continued. In my first week at GWT, our Conservation Officer took me to the beautiful tract of ancient countryside at South Sebastopol, between Cwmbran and Pontypool. Since then, and despite all our efforts, the planners have given the nod to housing. That land still has all its fields of hay-rattle, and hedges dotted with the occasional alder buckthorn, but the sword of Damocles now hangs by a hair over it, and it is only a matter of time until the developers decide that they need to cash in the land.

The more greenfield land we lose, the more our remaining countryside is under pressure. But brownfield development often causes greater losses. Throughout Wales old quarries, railway lines and rough corners of urban areas offer refuge for a rich array of species, including some which can no longer find a place amidst modern farmland. The South Wales coalfield still has an especial wealth of such interest, despite years of all too effective sterilisation through banal land reclamation schemes.

As naturalists and conservationists, we are perhaps better aware of this than ever, but we still often fail to influence the decision-makers. As I write, I am plagued by memories of lost brownfield battles: the Newport site for the supposedly protected round-headed club-rush is to be redeveloped; a KFC and equally characterless hotel now crush a former bee orchid site in Pontypool; and the heather covered pit tips just east of Merthyr Tydfil are disappearing under a growing opencast coal mine right now (*Natur Cymru* 32:8-12).

The spectre of coalfield 'reclamation' shows little sign of receding. The remaining areas of intricate habitat mosaic at The British and The Varteg, between

Lauri Maclean

Bee orchid on a brownfield site

Lauri Maclean

Lesser butterfly orchid - a species on the edge in Gwent

Blaenafon and Pontypool, are each subject to major redevelopment proposals. The latter site is even home to a lichen which appears to be new to science. But as it is growing amidst mine-wastes, no-one seems to care. And as for heather, creeping willow, petty whin, grey partridge, yellowhammer, brown hare, slow worm, scarce blue-tailed damselfly, mottled grasshopper, grayling and small pearl-bordered fritillary et alia, what do they matter anyway?

There is no getting away from the influence that built development and the planning system continue to have over Welsh wildlife. However, those issues are dwarfed by the lack of balance between food production and wildlife, the insidious effects of diffuse nitrogen pollution from hilltop to floodplain, and accelerating climate change.

I am unconvinced that Tir Gofal provided the best integration of farming and biodiversity. Certainly, over much of Wales, wildlife habitat has remained the exception rather than the rule, with the vivid green of over-fertilised rye-grass colouring much of the Welsh lowlands, and all too many hillsides too.

Species in decline

The long-awaited 2007 *Flora of Monmouthshire* did not disappoint as a wonderful book, but it confirmed the decline – or complete loss – of many native plants. So far, agri-environment schemes have not reversed this trend, whilst farmland birds such as tree sparrow are in freefall, as starkly detailed by the 2008 publication of Birds of Gwent.

In Spring 2009 I looked upon two plants of lesser butterfly orchid in the last Gwent site for this elegant, delicate and ghostly flower. The species is on a knife-edge in south-east Wales, but I firmly believe that we mustn't give up on it. Habitat management for this species in coming years may be akin to wildlife gardening, but it is vital. I hope this will meet with greater success than was the case for the ill-fated meadow clary – the last 12 months have seen it die out at its last Welsh site, little more than a stone's throw from the butterfly orchid.

It is relatively easy to focus on the fate of flowers and birds – but what of the great bulk of biodiversity? Gwent has but one person looking at lichens, a tiny band concentrating on fungi, a couple of people with a passion for bryophytes, a few enthusiasts for the more attractive and identifiable Orders of flies and beetles, and two spider recorders. Their studies suggest that lower plants and creepy crawlies are just as badly off, perhaps more so.

I believe the Wildlife Trusts must always be imbued with the fervour of devoted naturalists, but the Trusts represent an ever-broadening constituency. GWT's membership has doubled since 2001 and is larger than that of any local political party. Our wildlife faces a growing crisis, but it is one that can be tackled by the Trusts' rising membership combined with sharing resources across Wales, and the collective vision of Wildlife Trusts Wales.

New partners

The Trusts have to stand up for wildlife, but for wildlife to have a future a broader, principled but pragmatic approach is required. I have taken particular satisfaction from seeing the development of Wildlife Trusts Wales' corporate-involvement scheme, Welsh Wildlife Partnerships (see *In business with nature*, pp 27-31).

Wildlife needs these unlikely bedfellows, from chemical companies to developers.

I believe what we've begun to see in Welsh conservation is a willingness to act in concert, to work at all levels, from the local to the landscape-scale. Micro-management for wildlife might just keep some of our species going. However, it is the Living Landscape approach, as championed by the Wildlife Trusts, which integrates conflicting land-uses and provides a joined-up countryside. This can give a network of opportunity to vulnerable species so their prospects can be rekindled.

These are fine aspirations. However, habitat management and re-creation from Pumlumon to Wyeswood Common, combined with a history of successful landowner liaison work such as the Gwent Grasslands Initiative, demonstrate real action.

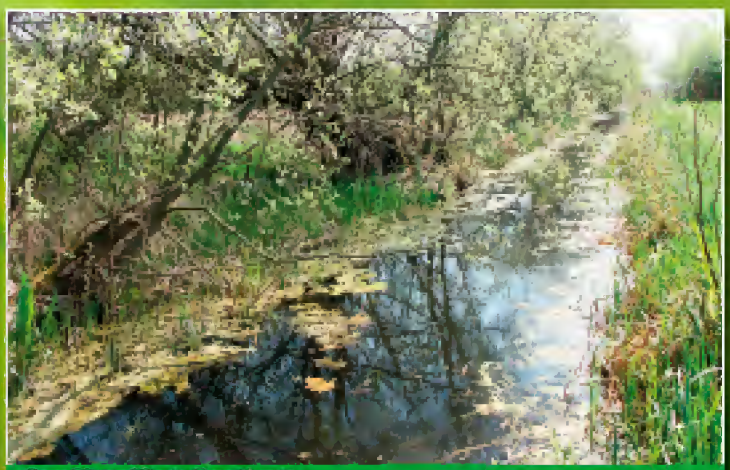
This progress is coupled with reinforcement of the infrastructure of the conservation world. Gwent is now served by SEWBReC (South East Wales Biological Records Centre), whilst the rest of Wales also has vibrant Record Centres. Most local authorities are now embarked upon the designation of non-statutory Wildlife Sites, and I have been delighted to perceive a renewed vigour in statutory conservation.

Richard Becker

Gatekeeper butterfly

Jon Prince

Orchids at Springdale Farm Reserve



Lauri Maclean

Reen Magor Marsh, Gwent levels

Gwent Wildlife Trust

Great silver beetle

Campaign success

My spirits soared further in July, when I heard the 'New M4' had been cancelled through the Welsh Assembly Government's Wales Transport Plan consultation. I had just left Gwent, but nothing could make me happier than knowing that the fantastic wetland wildlife of the Gwent Levels had been saved from that dreadful road proposal (*Natur Cymru* 29:43). I have been privileged to have found great silver beetles and ornate brigadier soldier-fly larvae on the Levels – perhaps now they will be there for another generation.

For too long, the political consensus – as judged by actions, whatever the words – has been putting jobs before wildlife, as if the two were mutually exclusive. The *Valuing Our Environment* document showed back in 2002 that these concerns actually go hand in hand in Wales. Perhaps the decision to invest in sustainable transport rather than a New M4 can be a conceptual talisman, which will lead to integrated decision-making throughout Wales, for the benefit of people and wildlife.

Wales and its wildlife are so precious, and need your knowledge, enthusiasm and love, coupled with constructive dialogue with everyone from your neighbours to the First Minister. Remember we have a world to save, starting with what you still have – or can bring back – on your doorstep. Hwyl fawr a phob hwyl, and keep fighting the good fight.

***Julian Branscombe** was Conservation Officer with Nottinghamshire Wildlife Trust for four years, before joining Gwent Wildlife Trust as Chief Executive in June 2001. In summer 2009 he moved to Orkney with his family, where he is now enjoying life at a more moderate pace, delivering a Landscape Partnership Scheme and seeing lots of rare birds.*

Wrth edrych nôl....

Atgofion cymysg sydd gan Julian Branscombe o'i gyfnod gyda Chymdeithas Bywyd Gwyllt Gwent rhwng 2001 a 2009. Er cyfoethoced yr ardal, o'i gymharu â'i hen swydd Nottingham, roedd yna siomedigaethau a thalcenni caled i'w brwydro.

Llwyddiant, yn sicr, oedd adferiad gweirgloddiau ar warchodfeydd fel Fferm Springdale. Ond y tu hwnt i'r gwarchodfeydd mae'r dirywiad wedi parhau, yn dystiolaeth o frwydrau a gollwyd; y caniatád a roddwyd i ddatblygu tirlun gwledig hynafol rhwng Cwmbran a Phontypŵl, y caffi KFC a godwyd ar gynefin tegeirian y wenynen, a'r tomenni grugog ger Merthyr sy'n diflannu dan waith glo brig. Mae tiroedd ôl-ddiwydiannol cyfoethog dan gymaint o fygythiad â thir gwyrdd - a'r sgwarnog, y betrysen lwyd a'r bras melyn yn cilio yng ngwyneb 'cynnydd'.

Mae'r anghydbwysedd rhwng cynhyrchu bwyd a gwarchod bywyd gwyllt, ynghyd ag effeithiau llygredd a newid hinsawdd, yn fwy fyth o ddylanwad na'r system gynllunio. Methodd cynlluniau amaeth-amgylcheddol, hyd yma, i blethu ffermio a chadwraeth ac atal tranc rhywogaethau.

Ar y llaw arall, cynyddu mae'r gefnogaeth i fywyd gwyllt. Ond os yw cadwraeth i lwyddo rhaid tynnu chwaraewyr gwahanol ynghyd – mae angen cefnogaeth cwmniau a datblygwr, yn ogystal â naturiaethwyr, ar fywyd gwyllt.

Tybed ai datblygiad cludiant cynaladwy, yn lle M4 newydd, fydd y trobwynt mawr - yr allwedd aur i ddangos bod modd creu dyfodol gwahanol i Gymru – lle mae amgylchedd gyfoethog yn sail gwironeddol i ffyniant economaidd? Mynd a dod yw'n hanes fel unigolion, ond mae'r frwydr i warchod bywyd gwyllt Cymru yn parhau.

Ray Woods

In business with nature

Blaenavon ironstone workings

The Welsh landscape may have paid a price for its industrial past, but there are signs that attitudes are changing for the better, says ***AMY MULKERN****, Welsh Wildlife Partnerships Manager.*

Harvest mouse

Michael D Smith

Iron and coal, copper, lead, and slate: Wales has been mined from the shores of Anglesey to the valleys of south Wales. Since before the time of the Romans, people have been extracting the rich mineral resources of this beautiful country.

During the industrial revolution, the blasted landscapes of slag heaps and coal mines spread further than anyone could have imagined. Iron and steel works and other heavy industry sprang up along the shores, pouring poisonous gases into the air and polluted water into the ground, rivers and coastal waters. People who grew up in the industrialised areas of Wales in the 1950s paint a picture of a desolated landscape hazardous to people and discouraging to wildlife. Coal mining may have fuelled an economic, social, and cultural revolution, but it left a terrible legacy for workers dying in their forties with lungs dissolved by coal dust, and for the land buried beneath a layer of spoil.

It can be tempting to think that the companies who ran the mines and factories were only interested in maximising profits and were uninterested, at best, in the fate of their workers and the landscape they were helping

to destroy. This has not always been the case. When almost all the adult male population of a village is killed in a mine collapse, this human tragedy has a great impact on the whole community. Many companies and trade unions worked hard to improve working conditions and to provide education and support for local communities. During the latter part of the 20th century, laws were brought in to limit emissions, thereby slowing environmental degradation. Sadly, it took the Aberfan disaster of 1966, when a colliery waste tip destroyed a primary school, killing 144 people, 116 of them children, to bring in legislation to ensure the safety of tips and spoil heaps.

The past 30 years has seen a revolution of a different kind in the valleys of Wales and across the world. For too many companies, corporate social responsibility is simply a convenient green fig leaf intended to draw attention away from the harm they are doing to people and wildlife. But others are genuinely committed to being responsible members of the community and to undoing some of the damage done by centuries of mining and heavy industry.

Plant managers in chemical companies talk to me passionately about the fact that, while their emissions into rivers are ten times lower than the legal limit – and in some cases actually cleaner than the water they are discharging into – this is still not good enough, because there are some chemicals still present. Others tell me about their enthusiasm for the 'slow readers'

WTW, Amy Mulkern

Dow Corning's nature centre

classes which their shop floor workers run for local children struggling with literacy at school. And, of course, there are those who are delighted about the work their companies are doing with the Wildlife Trusts in Wales to manage land for nature, enhancing our wild spaces and inspiring a new generation.

Industrial scale

Dow Corning is a good example. It is a global chemical company with a plant in Barry in south Wales, about eight miles from the home of the National Assembly for Wales in Cardiff Bay. The whole area is a series of interconnected docks, factories, light industry and warehousing, under the flight path of Cardiff International Airport.

Far from being ecological deserts, brownfield sites

Dow Corning PLC

Margaret Matthews (Director & Plant Manager of Dow Corning) and Iolo Williams (Patron, Welsh Wildlife Partnerships) with 'ugly bug' local schoolchildren

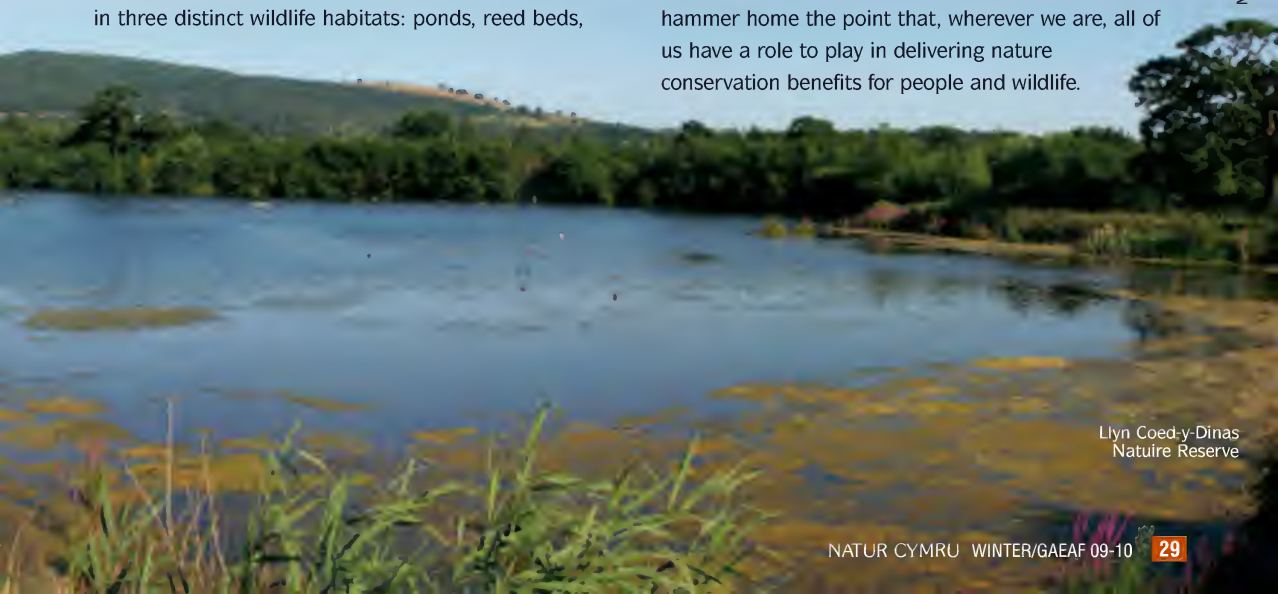
are far less polluted than they once were and are becoming a haven for wildlife. Dow Corning has given this a helping hand by creating a fantastic fresh and brackish water wetland area next to its plant at Cadoxton Ponds.

Working with the Wildlife Trust of South and West Wales (WTSWW), it acquired the 30 acres of land and set to work improving it for wildlife. In the Summer of 2007 it was ready for the official opening of the ponds and education centre by Welsh TV naturalist Iolo Williams, who is patron of Wildlife Trusts Wales corporate scheme, Welsh Wildlife Partnerships.

Those who arrived early in the morning to prepare for the opening were greeted by the sight of a grey heron gliding lazily from one end of the ponds to the other. The reserve supports a wide range of flora and fauna in three distinct wildlife habitats: ponds, reed beds, and meadow land. The area is home to four species of dragonfly, and wading birds are encouraged by the design of shallow areas in the ponds. Other species include the harvest mouse, and a good selection of bees and butterflies. The site offers a sheltered feeding ground for many over-wintering species of waders, and a safe nesting site for spring visitors.

Since the opening of the ponds and education centre, our education officer now provides outdoor and classroom activities for teachers and pupils from schools in the Barry and Cardiff area: over 2000 kids a year take part in our activities. Whether carrying out mini-beast hunts or learning about the different flowers in the meadow, it all meets key stage requirements and provides teachers with materials to take back to the classroom for further learning. For many children from these urban centres, the nature centre offers them their first experience of wildlife and nature conservation, helping to inspire the next generation.

It's not just local school children who have found the nature centre inspirational. The UK Chemical Stakeholders Forum paid a visit, to show members how chemical companies can play a part in delivering a positive contribution to the environment. Many of the attendees were astounded by what had been achieved and there is nothing like seeing the difference a company can make to the bleakest of landscapes to hammer home the point that, wherever we are, all of us have a role to play in delivering nature conservation benefits for people and wildlife.



Michael D Smith

Llyn Coed-y-Dinas Natuire Reserve

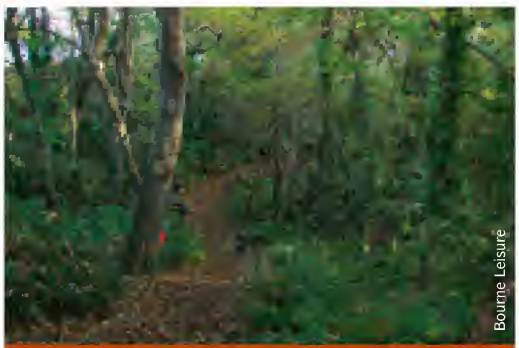
Bourne Leisure

Hafan y Môr, part of one of Bourne Leisure's caravan parks

There are no bingo halls or shops selling cheap trinkets to tourists at the Bourne Leisure caravan park at Quay West on the Pembrokeshire coast. Instead, there is a broad-leaved woodland running down to the beach with a nature trail winding through it. The woodland provides an excellent connection between the adjacent Special Area of Conservation (SAC) and the beach, allowing species such as otter to move safely between feeding areas. It also has a number of notable species of fern, which were identified during a survey carried out by the WTSWW as part of Bourne Leisure's membership of Welsh Wildlife Partnerships.

Holiday mood

The message that people cannot live apart from their natural environment is just as relevant to other parts of the Welsh economy as it is to the manufacturing sector. Anyone used to holidaying in Wales as a child will be aware of the importance of tourism, and may have vivid memories of acres of caravan parks along the sandy beaches: row after row of identical static holiday homes crammed closely together, filled with screaming children, angry parents, and yapping dogs.



Bourne Leisure

Woodland walk at Bourne Leisure, Quay West

But a visit to any of Bourne Leisure's holiday centres soon shows that caravan parks have changed beyond recognition. Bourne Leisure have built up a committed relationship with Wildlife Trusts on whose patches their holiday parks are located. We have been working closely with them at their Greenacres site in north Wales to halt encroachment of willow and bramble onto the dune systems, thereby improving the habitat for invertebrates. The increase in food sources should be excellent for wild birds, and to this end Wildlife Trust staff have been working with residents at the caravan park to put up nest boxes at the edge of the dunes.

People power

You may wonder what role there is for companies who do not have large tracts of land that can be used to create and enhance habitats for biodiversity benefit. What all companies have, from small firms of accountants to massive production facilities, are people who can benefit from spending time on nature reserves. So it was with that in mind that we formed a partnership with Cambrian Training. Based in Welshpool, but with offices spanning the country, Cambrian Training Company is one of the leading providers of training and support to the hospitality, butchery, food and drink manufacturing, management and customer service sectors throughout Wales. Montgomeryshire Wildlife Trust are in the process of developing their employee volunteering services and so we got the staff at Cambrian Training to cast their expert eye over our programme. And what better way than by getting them to run through the activities out on our reserves at Severn Farm Pond and Llwyn Coed y Dinas!

Most practical conservation work brings team building benefits and is also good for problem solving and breaking up existing hierarchies: sometimes it's the chap who drives the forklift who ends up running the team and the director of finance

who becomes a skivvy for a day. However, what Cambrian Training brought to our work was a depth of understanding of the other benefits – using mini-beast hunts to develop key stage mathematics skills, report writing and presentation skills for adult learning as well as for children. As a result we hope to work with many groups of people which nature conservation does not usually reach.

And what about small businesses, with their tiny turnovers and often even smaller profit margins? Well, they do what they can. One example would be the local pub filling their planters and hanging baskets with native plants. For Richards Moorehead & Lang, an engineering consultancy based in Ruthin, biodiversity is woven through their business model, often literally. This company specializes in using vegetation to create soft engineering solutions. Willow-reinforced banks replace the traditional concrete lattice in their projects and all their works are designed to complement existing landscapes.

These are just a few examples of companies who are genuinely committed to wildlife and who are delivering on their commitment to corporate social responsibility. They care just as much about Wales' rich natural heritage and the harm left by the industrial revolution as any individual member of the Wildlife Trusts. By seeking to work actively with more and more companies across Wales we have a fantastic opportunity to create connectivity between reserves and deliver our vision of a living landscape and a Wales rich in wildlife for the enjoyment of all.

Amy Mulkern *brings together third sector organisations and private companies to deliver environmental and social benefits. She worked for seven years for the Forest Stewardship Council before becoming Partnerships Development Manager with Wildlife Trusts Wales.*

For more information about Welsh Wildlife Partnerships, please visit the website ***www.wildlifepartnerships.org*** *or contact Amy Mulkern on* ***02920 480 070****.*

Cydweithio naturiol

Delwedd dywyll sydd gan y diwydiannau trwm fu'n britho tirlun Cymru dros y canrifoedd. Ond gwelwyd newid mawr dros y blynyddoedd o ganlyniad i ddatblygiadau o ran deddfwriaeth ac agweddau.

Mae'r Cymdeithasau Bywyd Gwyllt yng Nghymru yn helpu sawl cwmni i weithio er lles bywyd gwyllt. Er enghraifft, creodd cwmni Dow Corning gynefinoedd dŵr croyw a lled-hallt ger eu ffatri yn y Barri ac mae dros 2000 o blant yn ymweld â'r safle bob blwyddyn. Mae cwmni gwyliau Bourne Leisure hefyd yn gweithio i atal lledaeniad helyg a mieri dros dwyni Morfa Bychan, Porthmadog ac i annog ymwelwyr i osod blychau nythu ar gyrion y twyni.

Nid pob cwmni sy'n berchen ar dir. Ond mae pob un ohonyn nhw'n ymwneud â phobl a all elwa o dreulio amser ar warchodfeydd. Yno gallant wneud gwaith ymarferol sy'n helpu datblygu timau a sgiliau datrys problemau. Yn yr un modd, gellir defnyddio'r amgylchedd i helpu sgiliau sylfaenol, fel cyflwyno a rhifedd, ymhlith oedolion. Mae lle i gwmnïau bychain fel gwestai a thafarndai chwarae rhan hefyd – er enghraifft drwy lenwi basgedi crog â phlanhigion brodorol.

Drwy weithio fel hyn gwelwn fod modd i gadwraeth natur gyffwrdd â bywydau pobl wahanol gan gynyddu'r gefnogaeth i'r amgylchedd naturiol.

Ray Woods

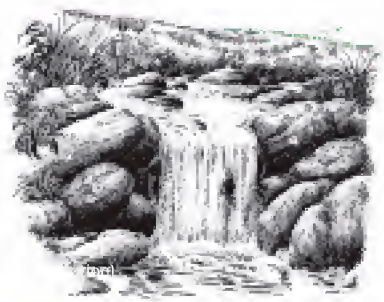
Old iron workings at Blaenavon

Gareth Ellis

A rural model - *communities get resourceful*

Dyffryn Crawnon reserve near Tredegar

The Green Valleys, a project in the Brecon Beacons run by local people, is bringing benefits to rural communities and their environment, as ***GARETH ELLIS*** *explains.*



Are climate change, peak oil, environmental degradation and the loss of rural services problems that only our government can tackle? While it is important that governments act on these issues, what can people and communities achieve by themselves?

This was the question posed by NESTA, the National Endowment for Science, Technology and the Arts. Their aim is to foster innovation that tackles current and future challenges. In order to stimulate community-led carbon reduction initiatives, NESTA launched the Big Green Challenge, with a £1million prize fund available to the best ideas. Armed with this incentive, staff of the Brecon Beacons National Park Authority visited communities across the area to work out what support there was for community action. The response was overwhelming.

Life in rural Wales may seem idyllic and far removed from the problems of the world, yet rural communities live on the sharp end of rising oil prices. Many small communities are not connected to the gas main and

rely on heating oil for winter warmth. The steady erosion of local services such as bus routes, schools and Post Offices means that rural populations are entirely dependent on private cars. As the price of oil rises sharply, the impact on rural communities is massive.

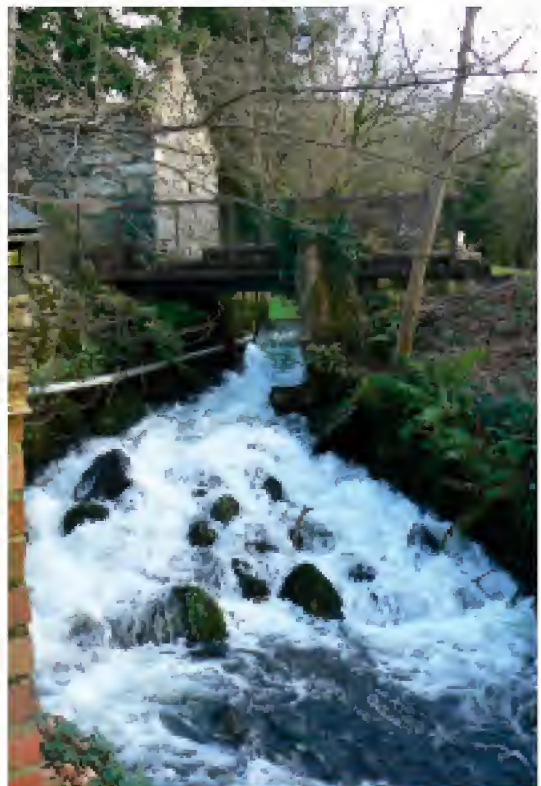
Climate and environmental changes are also being felt across Wales. With the rural economy and lifestyle linked to farming and land management, people are dependent on what the landscape can provide. This landscape has been shaped to grow food and so it may not necessarily be able to fulfil other functions, such as carbon storage, water storage and other ecosystem services, to its full potential. With water effectively engineered from the landscape, rural areas are at risk of flooding and soil erosion, impacting both agricultural production and domestic security. And with such small populations, rural areas find it hard to attract investment for flood defences.

Our rural communities have a deep concern for their future as they are seeing and feeling the effects of rising oil prices and environmental change. Yet these communities feel that little is being done for them and that they are powerless to act themselves. Developing a mechanism for individuals and communities to work together to tackle their concerns was the primary aim of the Big Green Challenge from NESTA.

Interconnected issues

While at first glance social, economic and environmental problems seem separate, it's clear that they are all linked. As an example, the economic pressures faced by hill farmers have necessarily caused a loss of natural habitats to increase food production. This economic pressure is a result of centralised food supply through supermarkets which has also led to a loss of rural shops. Lack of shops and other services increases transport and fuel costs for local people, including the hill farmers and their families, further adding to their financial pressures. As people are priced out of living in rural areas and homes become holiday lets, schools and pubs close from a lack of customers. And the social, economic and environmental fabric of rural Wales continues to dissolve.

So if these problems are linked should they not be solved together? What resources do rural areas have to tackle these problems? Finance is limited and likely to become more so as the UK economy stalls so a sound and sustainable funding strategy is



Mandy Marsh

An opportunity to tap the power of water

required. Any solution should also empower communities to act and not simply involve them. Finally, the solutions must be environmentally sound and protect the natural resources that are available and restore vital functions in the landscape.
Where can we find the resources we need to start a wholesale change to our approach to landscape management, agriculture and providing rural services? Regardless of whatever else it lacks, rural Wales has two abundant and sustainable resources, two resources that are under-used, misunderstood, ignored by many and are often not considered resources at all: the Welsh landscape and the communities that live within it.

The landscape provides our basis for natural wealth and it was the effort and imagination of our communities that shaped this landscape through the sustainable use of natural resources. Before the globalisation of the economy and the ability to transport resources over vast distances, communities needed to source everything they needed from the landscape around them. They also understood that they could not deplete these resources beyond the landscape's ability to regenerate itself or else they would suffer shortages and declines.

As human society developed, our demands changed. We became accustomed to supporting ourselves with resources from further afield, whether it was food, fuel or commodities. We were no longer limited by the provisioning available from the local environment and so our intimate relationship with the land around us began to fade. We lost our ability to live sustainably as we traded a sustainable lifestyle for one of comfort and convenience, the hallmarks of developed society.

No one is suggesting we give up this lifestyle. Sustainability does not necessarily mean that we must abandon our conveniences and luxuries. But we must recognise and identify the side-effects of the developed lifestyle and work to eliminate them, as it is these side-effects that are the drivers for environmental damage, the loss of the rural economy and reduced community identity, services and cohesion.

Energy from the landscape

A primary cause of these losses has been our use and dependence on fossil energy. All the huge benefits energy use has given us operated under the assumption that there was a cheap and plentiful supply. We are now beginning to understand that this is not the case and we are beginning to feel the effect of rising costs and rising atmospheric carbon. We need to develop an alternative energy supply system to break free of these problems. So can we supply our energy needs using a mechanism that

Gareth Ellis

Upland raised bog at Gwaun Nant Ddu, of low agricultural value but of great economic potential as a hydropower 'battery'.

releases no carbon, returns the profits to our communities and requires the landscape to be in a good environmental condition, prompting its restoration? We can, and it is our landscape that can provide this energy.

Hydro-electric generation is hardly a new technology. It is a simple and direct way to capture the energy of moving water and transform it into electrical power. Across Wales, water wheels were used for milling corn and other industrial processes and then others were installed on reservoirs and weirs to generate electricity. When mains power was brought to Wales, these hydropower plants became redundant or were purposely removed. In fact, one in the centre of Brecon was removed and its leat filled in as a condition of bringing power to the town. With frightening short-sightedness, some rural areas removed their own sources of power and instantly moved from self-sufficiency to dependency.

For hydropower to be effectively realised there are two basic requirements; altitude and rainfall. Wales does not suffer from a lack of either. These two basics are improved by the presence of deep, water holding soils at altitude to store and release water, in effect becoming vast batteries of power. When these wet soils feed numerous small streams flowing over steep slopes and the streams pass close to compact settlements and scattered dwellings as consumption points, then the potential to generate and consume localised power is huge. If we could start again, and purpose design a landscape to generate hydropower, we would create something that looked much like the Brecon Beacons and, in fact, much of Wales.

If communities and individuals could then install hydropower generators, we could not only reduce our carbon emissions but would have a secure supply of energy and a significant income from selling energy supplied to the national grid. With this income, communities could support themselves by beginning to fund their own services. Communities would be empowered and have the ability to decide what their needs were, no longer relying on

Mandy Marsh

Energy from water was once commonplace

unsustainable government grants and hand outs. If this income were then used to fund other energy-saving or generation schemes, we could reduce carbon emissions to nothing and even make rural communities carbon negative – they offset more through generation than they emit. Installing solar power onto schools and community centres, and funding or subsidising a local bus service, pubs, shops or post offices, further reduces the carbon footprint from private cars and the fuel costs of individuals. The re-establishment of a vibrant rural community could be nurtured from the bottom up and reduce the economic pressures of households at the forefront of the energy crisis.

Environmental benefits

Beyond the reduction of carbon emissions, there are direct benefits to the environment. For years, hill farmers have struggled to compete with other areas that are more easily farmed. Cooler temperatures, high rainfall and steep slopes have always counted against the Welsh farmer. By installing a hydro

Richard Becker

Hydropower project

generator, all these disadvantages become assets. The uplands of Wales have lost value for both biodiversity and agricultural production as it has been so difficult to see a financial return from the land. Digging moorland grips and frequent burning were a farmer's only option to improve income by improving the grazing and the financial return from livestock. By generating energy, there is a sound financial reason to restore the uplands to their previous wetter condition so that winter rainfall can be stored and power generated as the water escapes over the drier summer months. This also provides huge benefits to flood defence, drought prevention and restoring biodiversity. With the hydro generators only taking a percentage of the water in the stream and returning it downstream, net loss of water is practically zero and flow rates are only affected along relatively small sections of watercourse.

Those farmers who have installed hydro-generators are reducing stock numbers, so benefiting a number of other habitats. They have more time to farm how they want, and less financial pressure. As these farms become sustainable there is more incentive for the next generation to take over, securing continuity and transfer of land management skills and knowledge. Farming and farmers are the basis of rural communities, so a sustainable future for them creates a sustainable future for rural communities.

The Green Valleys

This is the model The Green Valleys is using and developing. Set up as a Community Interest Company, it can only work to deliver the company aims – carbon reduction and environmental improvement. It is community members, not local government officers, who form the directorship of this company. It is their skills, imagination, drive, enthusiasm and knowledge that has set this company up as a means of funding hydro schemes and securing an income which allows more to be installed. As this income increases and more hydro schemes are installed, other community-led solutions can be developed, such as sustainable woodland management to provide wood-fuel and sustainable transport solutions such as the purchase of a community electric vehicle. Supporting shops and other services may provide an outlet for farmers to supply local food, further reducing food miles and the carbon footprint. This will stimulate more mixed farming and allow more market freedom for both producers and consumers. This can only benefit farmers, the landscape and our communities.

Human benefits

But the real benefit of The Green Valleys has been the effect on people. It has brought communities together as we understand that, for all our differences, if we live in the same place we share the same problems. The Green Valleys has given people solutions to the challenges that face us, our changing climate, dependency on oil and our lack of rural services. It has made people and landscape the centre of these solutions and provided the means for people to focus their concerns, knowledge and passion for where they live into practical action.

NESTA will announce the winners of the prize fund in January 2010. While it was this incentive that created The Green Valleys, it's no longer the focus. Having something to aim for has been the catalyst for a truly remarkable ground swell of community action. Winning prize money is no longer critical, as the financial models, support from communities and natural resources are all in place. The Green Valleys has proved that it is communities not governments, and that it's the landscape, not fossil fuels, that provide the resources to develop the sustainable, low carbon community economies we need if we are to avoid potentially catastrophic climate change.

The Green Valleys is about landscape and people, environment and communities, energy and money. Build a system where they feed off each other, develop from each other and re-invest in each other and we can finally live within our means once again.

***Gareth Ellis** is Biodiversity Officer at the Brecon Beacons National Park.*
www.thegreenvalleys.org

Gareth Ellis

Nant y Wenynen, Dyffryn Crawnon. The energy generation potential is through the distance the water falls rather than the volume of water in the stream.

Gwobr yn gatalydd

Iba raddau gall cymunedau daclo'r pynciau mawr y disgwyliwn i lywodraethau'r byd eu datrys – newid hinsawdd, prinder olew, dirywiad amgylcheddol a diflaniad gwasanaethau gwledig?

Mae 'Her Werdd' NESTA yn cynnig miliwn o bunnoedd am y syniad gorau gan gymuned i leihau carbon. Mewn ymateb i'r her hon sefydlwyd cwmni cymunedol 'The Green Valleys' yn ardal Bannau Brycheiniog. Dau ddiben sydd i'r cwmni – lleihau carbon a gwella'r amgylchedd. Aelodau'r gymuned yw'r cyfarwyddwyr a sail y fenter yw'r argyhoeddiad mai tirwedd a chymunedau Cymru yw'r adnoddau pennaf wrth ddatblygu atebion lleol i broblemau economaidd, cymdeithasol ac amgylcheddol Cymru. Sicrhau cyllid hirdymor, rhoi grym i bobl weithredu a gwarchod adnoddau naturiol yw'r egwyddorion sydd wedi llywio datblygiad y fenter.

Ein gor-ddibyniaeth ar danwydd carbon, a'r gred ei fod yn rhad ac yn ddibendraw, sy'n gyfrifol am lawer o'r newidiadau yn ein ffordd o fyw, a'r colledion sydd wedi digwydd yn sgîl hyn. Drwy gynhyrchu trydan o ddŵr gall cymunedau leihau allyriannau carbon, sicrhau cyflenwad ynni a chreu incwm drwy werthu ynni i'r grid cenedlaethol. Gellir troi rhywbeth sy'n dipyn o fwrn i ffermwyr – glawiad uchel a llethrau serth – yn ased, gan arwain at newid dulliau rheoli tir (e.e. ail-wlychu mawnogydd) a gwella cyflwr bywyd gwyllt ac at greu tirwedd sy'n helpu cynnal cymunedau cyfan (e.e drwy eu gwarchod rhag llifogydd).

Sefydlwyd The Green Valleys fel ffordd o ariannu cynlluniau pwer dŵr a chreu incwm cynaladwy a fydd wedyn yn hybu rhagor o gynlluniau cymunedol fel rheoli coedwigoedd a chludiant cynaladwy lleol. Ond mae hefyd wedi dwyn pobl ynghyd a throi eu hoffter a'u pryderon am eu milltir sgwâr yn weithgaredd ymarferol. Hyd yn oed os na chaiff y wobr fawr, mae eisoes wedi llwyddo!

Wildlife for kids

Gaynor Ainscough

BRIAN MACDONALD

has been running wildlife activities for the past three years, to share an appreciation of the wildlife of his home ground in Meirionydd with visitors of all ages, especially children. The following four diary entries give a flavour of these events.

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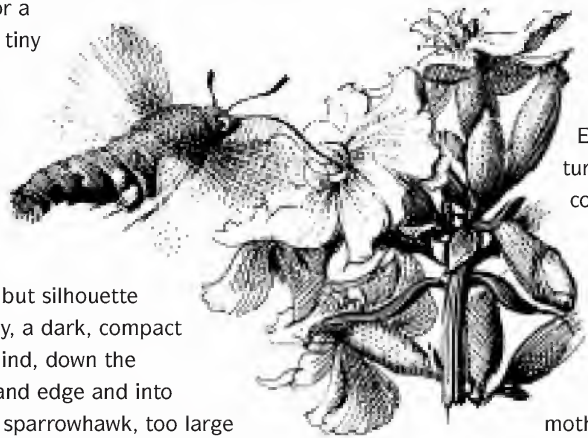
Dawn Patrol - 6 March, 2008

Parked outside the village school, long-suffering parents emerge from the dark with sleep-dazed kids signed up for the spring dawn chorus session. Too dozy for badinage, only the minimum quiet words are exchanged in the dark: unusually easy to explain the session and obvious need for quiet. Throughout, robins' joyful trilling phrases emerge from the night with ticking alarm calls, as territories are re-established before first light – a useful and clear demonstration of different types and purposes of birdcalls.

Setting off, a blackbird dives across our pool of lamplight, clattering in alarm, too early in the day and year for song. Leaving behind lamps and singing robins, we skirt the village and through dark woods, sky greying in morning light. At 6.30 the first song thrush starts up close and clear enough for young ears to distinguish, repeated phrases ringing out loud and clear, still too dark to find. Now in a clearing on a raised bridleway, a

dunnock's diminutive rattle sounds low down from the woodland path, too intermittent and unpredictable for most to pick up. Not so the wren, now also belting out its defiant refrain, incredibly loud and powerful for a small bird; picture a tiny rufous form on a bramble spray, bill wide, tail cocked, challenging the world, other wrens in particular.



Still too dark for all but silhouette against a greying sky, a dark, compact form dives from behind, down the length of the woodland edge and into gloom. Too dark for sparrowhawk, too large for blackbird, identification remains a puzzle until a heavy, wide-winged form re-emerges in silhouette as a woodcock wings its way over fine twigged treetops of the woodland edge.

Moth Trapping - 28 June, 2007

The kids' group arrived 9:30pm equipped with protective sunglasses for moth catching, a new activity. Expert John Hicks had a mercury vapour lamp over a wooden box set with perspex sheets to form a baffle trap; all on a white sheet spread on the lawn, with egg boxes inside and over it for shady refuge.

Two huge green moth nets proved popular to chase imaginary moths as light died and midges began dancing. At last, a brown & buff moth, netted before it reached the trap, identified as a barred straw. Then, a small, delicate, pale buff muslin footman, along with carpet moth and white wave. Home time, the lamp left lit to work its magic overnight.

Early morning: the light was turned off and trap moved to a cool, shaded spot. Well-camouflaged moths were spread hard against the timber box, two immediately obvious: one, startlingly like a snapped twig stub; another, large, open-spread moth of pale jade.

In the afternoon, experts and kids crowded around the trap: excitement as new moths found; some frustration in transferring to specimen tubes.

Evocative names for wonderfully marked and configured insects: shoulder striped wainscot, the dot, heart and dart. Forty-five species were collected, including a tan and pink monster, elephant hawk moth; pure white, furry-bodied, black-spotted white ermine, poisonous to birds; buff ermine, not poisonous – protected by imitating white mentor; peppered moth, well-documented for melanistic black form evolved in sooty industrial areas; and burnished brass, iridescent with copper, green and pink.

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How privileged to be introduced to a wonderful world of colour, pattern and evocative names, now appreciated in its full richness.

Wild Flowers - 4 July, 2008

Other than a discussion of the painful experience of getting sand in the eyes, the exact nature of the Wildlife Wales sessions for school 'Activity Week' was not explained, if only to maintain anticipation.

The morning group were to split into pairs and find an attractive plant in flower for identification, description, and discovery of as much interesting information as possible for eventual presentation to the rest of the group; written data sheets used by the afternoon group in their shorter session for a plant hunt. Minimum planned outcome was a realisation that all known organisms are named and that names act as keys to unlock further information.

As the groups snaked across the golf course and through the dunes, all shapes, sizes and characters, success was by no means certain, but with July sun and blue sky to help it was a great relief that the entire group became totally involved. Geoffrey Grigson's *The Englishman's Flora* proved a wonderful source of plant lore. Hairy leaved restharrow (*Ononis repens*), for instance, with sugary, pink and white pea-flowers, is named *tagaradr* or 'choke-plough' in Welsh: tough, sinewy roots could halt the progress of horse or ox-drawn implements and were also dug, cut into lengths and sold as 'Spanish Liquorice'.

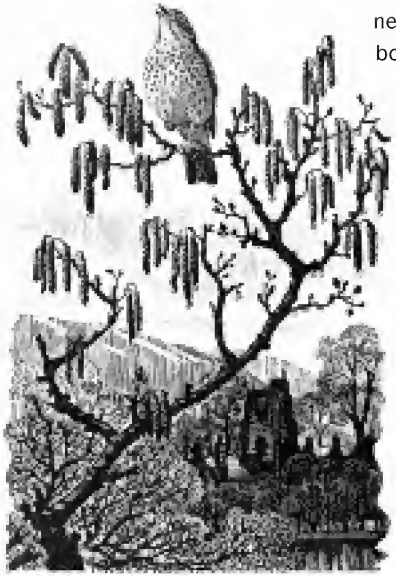
The afternoon group included just one lad who looked hard work: non-stop banter and horseplay the entire outward walk. A description of a dramatic chase involving a rabbit, stoat and magpies seen here the previous week held his attention and by the time we reached our destination and had established that he would receive only his share of attention as one of twenty, he and his initially reluctant partner not only steamed through all legible sheets produced by the morning group, but asked for and completed a plant sheet of their own.

Rock Pooling - 16 August, 2007

Next to the sign, a family group in waterproofs and bare knees stand in the grey drizzle, Dad wincing as the vehicle swings into view. The assumption that everyone is ready for action causes an instant

Gaynor Ainscough

Turnstones



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negative reaction from one small boy and hasty indications from mums that two middle-sized lads are the motivating force, a rueful Dad detailed to accompany. So, kitted up with aquarium tanks and nets, we set off to a grey, misty and deserted beach, eagerly discussing what might be found and what hazards we need to be aware of.

Sandwich terns hawk and dart into the water just off shore, only a shade less grey than the sea. An abundance of large, transparent brown prawns is immediately obvious, blue and yellow striped legs visible in the aquaria. Sand gobies jet from cover, relying on almost perfect camouflage for defence, persuaded once spotted to shoot into a net. Dad, carrying the aquaria, jumps visibly when approached from behind by his lad with a black and orange shore crab as big as the tank. Conical limpets and snail-like molluscs add to the collection: shiny black winkles in clusters; flat, grey-striped, turk's cap top shells; deep yellow flat periwinkles inching over brown bladder-wrack; an occasional blue mussel rooted to a rock.

Excitement runs high as dark blennies flip and splash in one pool, shooting to hide under rocks or weed, lower fins adapted for wriggling overland, eyes high and frog-like. Starfish are elusive even on the lower shore, only one small coral pink form found under a boulder, but jelly-red, blue-fringed, beadlet anemones hang abundant on undersides of rocks, venomous tentacles surprisingly deadly even to small fish. Terns' shallow water fishing is explained as fine, green and silver sand eels dart in lower pools.

Brian Macdonald *has been running Wildlife Activities since 2006, with the aim of helping people to discover and appreciate the rich landscape and wildlife of the coast and mountains of Ardudwy, Meirionnydd.*

Wildlife Wales activities and wildlife diary are aimed at the 60% of the UK population with a general appreciation of 'nature', rather than those with a serious or professional interest, but diary entries are available as a 'blog' on ***http://wildlife-wales.blogspot.com*** *and posted by email weekly to a growing number of recipients.*

Profiadau cofiadwy – yn agos at adref

Crwydro'n gysglyd drwy bentref a choedwig dywyll ym Meirionnydd. Côr y wig o'n cwmpas yn cyhoeddi diwrnod arall o wanwyn; gwrando am sŵn bronfraith, sgwrs brysur llwyd y gwrych a chlebar uchel y dryw a gweld cyffylog yn gysgod trwm yn erbyn yr awyr lwyd wrth iddi wawrio'n araf.

Gyda'r nos, ac wrth i'r gwibed ddechrau dawnsio, gosod pob math o offer yn ei le a gadael y llusern yn olau dros nos i hudo'r gwyfynod. Dychwelyd yn gynnar y bore wedyn i weld pa greaduriaid a ddaliwyd, a rhyfeddu at y patrymau cain, y lliwiau hardd a'r enwau bendigedig.

Cerdded drwy dwyni tywod i chwilio am blanhigion deniadol i'w henwi a'u disgrifio; dysgu pam cafodd y tagaradr ei enw ac am flas licris ei wreiddiau. Chwilio mewn pyllau llanw ar draeth unig a chanfod cyfoeth o fywyd môr - corgimychiaid a chregyn, ser môr yn llechu, pysgod bach yn sblishian ac yn gwibio drwy'r dŵr i guddio mewn cilfachau ac anemonïau mawr lliwgar a meddal yn glynu dan greigiau.

Dim ond blas yw hyn o'r gweithgareddau a drefnwyd gan un naturiaethwr brwd yn ardal Ardudwy er mwyn ysbrydoli plant a phobl o bob oedran i gymryd diddordeb yn eu hamgylchedd.

Green **Bookshelf** • **Silff Lyfrau** Amgylcheddol

Gower
Nigel Jenkins & David Pearl, Gomer Press, Llandysul, 2009, 144 pages, £19.99.

This beautifully presented hardback book with a superb dust-jacket is a collaboration between author Nigel Jenkins and photographer David Pearl. Jenkins, a native of Gower, currently lectures in Creative Writing at Swansea University while David Pearl was born in Nottingham and had a Welsh mother. Together they explore the various aspects of the 188km2 Gower peninsula and 64km coastline with a number of essays and poems, and dozens of striking photographs.

The status 'Area of Outstanding Natural Beauty' (AONB) has been part of our vocabulary for over half a century and Gower was the first area in Britain to gain such status in 1956. Jenkins claims that this status has protected Gower from undesirable developments, "from the inappropriate to the monstrous".

The essays include one on Paviland and the discovery of the 'Red Lady', who was actually a young man who lived about 30,000 years ago. His remains were discovered at Goat's Hole cave in 1823, and one of the poems is dedicated to him. There is also an interesting and informative chapter on the industrial heritage of Gower, which is often overlooked since the stunning coastline usually draws more attention.

The photo essays section of the book is dedicated to inland, plant and coast photographs, and is full of atmospheric images of subdued colours, mists and strong shadows. Perhaps a slightly frustrating aspect of the book is that the photographs are not captioned: the reader must consult notes at the end of the book to discover more. A caption under each photograph would have greatly helped. However, this is a minor criticism and overall the book has exceptional high quality text and writing style, with highly impressive photography.

Gower
Nigel Jenkins a David Pearl, Gwasg Gomer, Llandysul, 2009, 144 tudalen, £19.99.

Mae'r llyfr clawr caled yma gyda siaced lwch wych yn gydweithrediad rhwng yr awdur Nigel Jenkins a'r ffotgraffydd David Pearl. Brodor o'r Gŵyr yw Jenkins, ac ar hyn o bryd, mae'n darlithio mewn ysgrifennu Creadigol ym Mhrifysgol Abertawe. Ganed David Pearl yn Nottingham a Chymraes oedd ei fam. Mae'r llyfr yn archwilio gwahanol agweddau o Benrhyn Gŵyr gyda'i 188 cilomedr sgwâr a'i arfordir 64 kilomedr. Gwelir yn y llyfr nifer o draethodau a cherddi wedi'u hysbrydoli gan wahanol leoedd ar y Gŵyr, ynghyd â dwsinau o luniau trawiadol.

Mae'r statws Ardal o Harddwch Naturiol Eithriadol (AHNE) wedi bod yn rhan o'n geirfa ers dros hanner canrif bellach a Gŵyr oedd yr ardal gyntaf ym Mhrydain i ennill statws o'r fath a dyfarnwyd hynny yn 1956. Dywed Jenkins fod y statws hwn wedi gwarchod y Gŵyr oddi wrth ddatblygiadau annymunol, a dyfynnaf o'r Saesneg, 'from the inappropriate to the monstrous'.

Mae'r adran draethodau yn cynnwys traethawd ar Ben-y-fai a hanes darganfod y Ddynes Goch o Ben-y-fai, a oedd yn wir yn ddyn ifanc ac a oedd mae'n debyg yn byw oddeutu 30,000 o flynyddoedd yn ôl. Darganfuwyd ei olion yn Ogof Pen-y-fai yn 1823. Yn yr adran gerddi, mae cerdd i Ddynes Goch Pen-y-fai. Hefyd, ceir pennod ddiddorol a llawn gwybodaeth ar dreftadaeth ddiwydiannol y Gŵyr sydd yn cael ei hesgeluso'n aml oherwydd fod yr arfordir syfrdanol yn tynnu mwy o sylw.

Yn yr adran luniau, ceir tair rhan wedi'u ymroi i'r tir, planhigion a'r arfordir. Lluniau yn unig yw'r adran hon ac mae llawer ohonynt yn dangos lliwiau tawel, niwloedd a chysgodion cryf, sy'n awgrymu eu bod wedi cael eu tynnu yn ystod y bore, gyda'r nos neu yn ystod misoedd y gaeaf.

Un agwedd sydd braidd yn rwystrol yn y llyfr yw nad oes capsiynau o dan y lluniau. Rhaid i'r darllenwr felly edrych yn yr adran nodiadau ar ddiwedd y llyfr i ddarganfod mwy. Byddai capsiwn o dan bob llun wedi bod o gymorth mawr. Fodd bynnag, beirniadaeth fechan yw hon ar lyfr sydd ar y cyfan yn eithriadol o dda o ran cynnwys ac arddull ysgrifennu gyda lluniau hynod o drawiadol.
Gwenllïan Jones Rowlinson

The Vegetative Key to the British Flora
John Poland & Eric Clement
Published by John Poland, Southampton
£24.99.

Great claims have been made for this book. The eminent journal *Taxon* gives it a glowing review and you will need sunglasses for the one in *British Wildlife*. And they are all true: Poland & Clement is the new Gospel; it will change field botany. Anyone who has ever struggled with an inadequate description or found themselves nearly at the end of a key and then read the immortal words "fruits hairy / not hairy" or "stamens > 2mm" when there is no *bleep bleep flower* or fruit will seize upon this book. It means that you can identify plants that have been grazed or have finished flowering or are not about to do so. It adds months onto the field season. And it is stuffed with original observation, ingeniously displayed.

Look at the leaf base of your willowherb; check the pattern of stomata on a bindweed. Every path through the key seems to reveal a new or previously unseen character (often with a crisp illustration, to make the point). If you start at the beginning, just inside the cover, you usually get to an answer in just three turns of the page. (And the book is printed on special, flexible paper that falls open instead of grudgingly parting at the spine.) Astonishing! And it works!

But (and there is a 'but') it's not that easy. At least to begin with, you have to grapple with the very novel format. Those of us used to old-fashioned dichotomous keys ("hairy" vs "hairless") might stumble over the multiple-choice approach (hairs stellate, septate, hooked or dendritic?), especially as these options are often very crammed onto the page. Read it with care. Indeed, there are times when it does seem a bit overly compressed – a "txt style" abbreviation and strange terms where a few more familiar words might suffice. Then, finally, having found your way to, say, Division **N**, ("lvs toothed, alt"), Group **NE** ("Deciduous tree or shrub. Lvs with 2D veins" etc.) you will quite probably need a x20 hand lens and, at some point, the large, interesting Glossary. What is a "hydathode"? Does "2D" mean 'two-dimensional' or 'secondary'? It all takes some getting used to.

But (again), what do you expect? A genuine breakthrough won't look familiar ... and all this compression pays off. Incredibly, there is the entire British and Irish flora and nearly a thousand aliens in a pocket-sized 526 pages. There's a steep learning-curve to begin with but the key should reach functional speeds after an hour or so. It takes maybe 30 minutes to read the Introduction; another quarter hour to test out your first specimen and then plants start to key out in 4-5 minutes. Soon it is quicker still – although I have not achieved many in the 60 seconds claimed by the authors. Apart from the (slight) difficulty of new terms and abbreviation, what really slows me down is the pleasurable distraction of other entries in the key. It's rare indeed that you can browse a book that purports to be a functional manual – but then the authors do tell you that "this book flagrantly attempts the impossible". Very soon, when the news leaks out, this book will be a standard ... but it will be years before it loses that capacity to surprise. (And a hydathode, by the way, is a natty little gland "that exudes water (occasionally with lime, salt etc.) usually confined to the apex and teeth of a leaf.")
AJ

Richard Becker

Ghost slugs and 'Dead Man's Fingers': two alien predators in Wales

The British slug fauna is surprisingly dynamic. Of the 36 known species, at least a third are thought to be introductions, some continuing to spread rapidly across the country. As with much of north-west Europe's fauna, and in common with many invasive species, the aliens have their origins in the refugial areas of the Iberian and Mediterranean peninsulas, or the more distant Caucasus and Ponto-Caspian regions. The latest addition to the British list, the bizarre ghost slug *Selenochlamys ysbryda*, is remarkable in being a Caucasian analogue of the long-naturalised (or even native) shelled slugs (*Testacella* spp.) whose origins are Iberian or Mediterranean. The two are quite unrelated, slugs having evolved from snails many times, but resemble each other closely in ways that mark them out from more familiar species.

James Turner

Three views of an adult shelled slug (*T. maugei*; length approx. 40mm)

We described the ghost slug in 2008 from a breeding population in a Cardiff garden. It appears earlier finds of the species, dating back to 2004, had been mistaken for albino, shell-less individuals of *Testacella*. Since then the ghost slug has become famous, catching the attention of the media, numerous bloggers, and the public, even being listed as a global 'Top Ten' species for 2008. Its popularity (for a slug!) results from its strange biology. *S. ysbryda* is bright white in colour, and extremely extensible, able to become very worm-like in shape. It has vestigial eyes and spends nearly all its time beneath the soil surface, moving through cracks and earthworm burrows. As far as is known it only feeds on earthworms, which it snags with a specialised radula of blade-like teeth and slowly ingests alive. The worm is ratcheted into the body with the help of strong pharyngeal muscles, and calcium granules from the worm pass out undigested. Like other terrestrial slugs, *S. ysbryda* is a simultaneous hermaphrodite and may be self-fertile; in captivity, one individual laid 22 eggs which look much like those of other slugs. It reaches a larger size (75mm) than its known relatives in the Caucasus and, if captive observations are a guide, can live for at least two years. The sole other species in the genus, *S. pallida*, has been seen so rarely that it is itself mysterious, but both clearly belong to the *Trigonochlamydidae*, a family restricted to the Caucasus region. Endemism is high in this recognised biodiversity hotspot and new taxa (among them the largest land-snail in Europe, *Helix goderdziana*) continue to be found there.

'Dead Man's Fingers'...

...is, I am told, a South Walian local name for the shelled slug *Testacella maugei*. As the photograph shows, the vestigial shell at the hind end recalls a fingernail, and the slugs are appropriately sized at up to 80mm. Although *Testacella* features in many zoological textbooks it remains incompletely understood and retains a degree of mythology; the literature includes the contradictory claims that its rugby ball-shaped eggs explode on exposure to air, or bounce off hard surfaces like rubber! Those I have seen do neither. John Gwyn Jeffreys (1809-1885), Wales' most eminent malacologist, found *T. maugei* in his garden at Norton, near Swansea, but was exaggerating when he wrote "...it is scarcely inferior to the tiger, snake, or shark in its cunning and ferocity." (British Conchology vol. I, 1862). *T. maugei* is actually much like *S. ysbryda* in its behaviour, feeding on earthworms in a similar way using a

James Turner

An adult ghost slug (*S. ysbryda*; length approx. 70mm)

James Turner

Ghost slug teeth

radula whose blades are supplemented with barbs. For a predator, its movements are amazingly slow, although it is said to evert the radula rapidly during a feeding strike. Like *S. ysbryda*, *T. maugei* spends virtually all its life in the soil, emerging only after sustained heavy rains. It has a tough, dry, speckled body surface that provides some camouflage against soil, and may blow bubbles from the hind end when disturbed. There is little data available, but it seems both species feed around once a week except during very cold or dry weather, which they tolerate by remaining underground. *T. maugei* belongs to the *Testacellidae*, a family consisting of a few similar species restricted to the western Mediterranean and the Atlantic coast of Europe. The *Testacellidae* and *Trigonochlamydidae* are barely related, not having shared an ancestor for tens of millions of years, and evolved independently at the opposite ends of Europe.

Will history repeat itself?

The ghost slug is almost certainly a recent introduction. Molluscs are well-recorded in Britain, and south Wales has had its own slug specialists, among them Swansea-based H. E. Quick (1882-1967) who could not have missed the striking *S. ysbryda*. Its combination of being difficult to find, yet unmistakable when examined, means we have relied heavily on reports from the public (verified with specimens or photographs) to map the species' distribution. The response has been tremendous, with queries received from throughout Britain and worldwide. We now know the ghost slug occurs in gardens or adjacent areas scattered throughout south Wales. At the time of writing, these include Cardiff, Caerphilly, Gorseinon, Newport, Cwmbran, Brecon, and Talgarth. Remarkably, it remains unverified from England. The patchy distribution must result from passive dispersal in soil, compost or manure, especially around the roots of plants, rather than active migration. Spread could be limited by winter temperatures or moisture, but surely not by the availability of suitable urban habitat.

T. maugei happens to provide a historical parallel. It was first noted in Britain from a Bristol nursery in 1812, not long after it was described from Tenerife. Jeffreys and others considered it an introduction from Atlantic Europe that, by 1900, had become common in south Wales as far as Pembroke as well as throughout southwest England, and southern Ireland. These records are mainly from gardens, but also wilder areas, and the species' south-westerly distribution suggests it is limited mainly by climate. As *S. ysbryda*'s known distribution falls entirely within that of *T. maugei*, and their ecologies seem so similar, one may provide a model for the other if its spread continues unchecked. Perhaps history will repeat itself as *S. ysbryda* occupies more areas whose only carnivorous slug is currently *T. maugei*.

***Ben Rowson**, works at the Department of Biodiversity and Systematic Biology, Amgueddfa Cymru-National Museum Wales. He is keen to hear of further sightings of either species at ben.rowson@museumwales.ac.uk*

Welsh Institute of Countryside and Conservation Managment

Twenty years of working in nature conservation in England and Wales and you are forced to ask yourself "What have I achieved?" All that energy, tears and heartache bestowed upon those flowers, those weird lead rakes, that beautiful heath and now those mountains. Sometimes the obsession has been on the verge of insanity. Dreaming that, rather than being a 29 year old woman, I was in fact a species-rich sward stretched out on the slopes of a limestone dale, I was certainly absorbed in my work, a little scarily so.

I started out in England setting up rigorous monitoring for fields of flowers that were destined to be the 'sacrificial lambs of the designated site series', to 'prove' or otherwise that these fields couldn't be moved to make way for Tesco or new roads without loss of scientific interest! Surely we already knew the answer without my recording 3 million quadrats per hectare: they weren't just a collection of plants. But this was a welcome to the real world and the politics of nature conservation. I was so pleased to have my first job that I didn't question the principle behind what I was doing with any great vigour. I kept a certain detachment from the fields I worked in and it didn't hit me until some 15 years later when I drove over one of them at high speed on a new A1 link road. I winced: I knew where those flowers had gone.

A glorious stint of full time surveying of the limestone dales in Derbyshire followed, probably the last job when I actually had the capacity and time to do the job reasonably well. My itchy feet then took me off to the realms of research. The saving grace was that I had to sit in one field in Upper Teesdale for two years. Applying artificial fertiliser to my plots of beautiful grasslands, watching them change into something that I hated and doing enormous sums to model their change was not fun; I was too emotional and irrational for this, it was time to move on.

A real ecologist job in the Peak District beckoned. Eleven years of farms and quarries, farms and woodlands, farms and moorlands. I knew the place and the people too well. I stopped listening to others and there was no scope for learning, no encouragement to develop. I escaped at weekends to the mountains of Snowdonia for my spiritual boost. Leaving on Sunday evenings, watching the mountains disappear out of view, always tugged at my heart strings and left me feeling more and more that I needed to live in Wales. The National Trust finally gave me the opportunity to live in this beautiful country. The first years were hard, steep learning curves to climb and plenty of pits to dig out of, but there is so much scope, with all the land that the Trust owns, to make a difference for nature. Within such a wide-ranging organisation, the route to delivering positive change on the ground is not an easy one. The reality is that the drive and commitment to improve our land for nature needs to come from within those that work on the ground. This has to be rooted in a good understanding of nature and good partnerships.

These experiences – the lack of knowledge and thus lack of confidence to challenge, the lack of opportunity to develop and now a real recognition of the need for empowerment of others – lead to a recognition of the need for NATUR. To make a difference for nature there has to be a system that supports those that work in the countryside by increasing knowledge, improving skills and recognising achievements. There has to be a structured way of empowering others to sign up and drive forward nature conservation. We need to work together, and strong partnerships can only come from well-informed and connected people. NATUR, if able to realise its potential, will be able to significantly improve the delivery of nature conservation in Wales. It's an exciting prospect and one that I am very happy to be part of.

Helen Buckingham,
Nature Conservation Adviser for Wales, The National Trust

NATUR, the Welsh Institute of Countryside and Conservation Management, exists to raise the profile of all those working to conserve the living and cultural landscape of Wales, and to support them in their careers. For information on how membership of NATUR can benefit you in your career development visit the website www.natur.eu.com

Balancing objectives at Newborough Forest

The south west corner of Anglesey, near Newborough, is one of the finest coastal landscapes in Europe. It is celebrated as a Site of Special Scientific Interest (SSSI) and a Special Area of Conservation (SAC) for its sand dunes and saltmarsh, and as an Area of Outstanding Natural Beauty. Newborough Forest, which covers part of the site and is managed by Forestry Commission Wales on behalf of the Welsh Assembly Government, is also important and much valued.

What is so special about this area that makes it valued by so many?

Newborough Forest has a diverse range of habitats from sand dune systems with humid dune slacks to Corsican pine woodland. There are many important species, some of which are extremely rare, such as the shore dock, which is one of the rarest plants in Europe; the delicate petalwort (a tiny liverwort); and many species of orchid. The forest is home to the elusive red squirrel and hosts one of the largest raven roosts in Europe. There are also great crested newts, the blood-sucking medicinal leech, and a range of bat species.

In addition to the natural features people have left their mark over the centuries in the form of buildings, wells, field systems and archaeological remains.

The area is incredibly popular, with over 250,000 people visiting the site each year, to use one of the many way-marked walks or to experience the Blue Flag standard beach and facilities.

We should not forget that this is also home to the community of Newborough and forms a backdrop to their lives; many use it on a daily basis to walk their dogs and have lived there for many years. The Forest's managers must be sensitive to their views.

As sand dunes are inherently changeable habitats, with the winds changing their shape and location over the years, we need to consider these changes when trying to safeguard all the competing interests. Currently a number of the features for which the SAC is designated are in an unfavourable condition. These include the dune habitats, which require natural geomorphological processes to allow for the natural zonations typically found in sand dune systems, from foredune, mobile dune and dune slack to dune grassland. At present this is restricted due to the partial afforestation of the site.

In addition to the conservation of existing species, habitats and uses we must also consider the likely impacts of climate change across the site. The factors affecting Newborough's special features and the demands placed upon the site are both constantly changing, and we must ensure that we have the correct management in place to respond to them. Science has an important role to play: we must use it wisely to inform decisions or actions if we are to meet the challenge of bringing the SAC into favourable condition. Together with other specialists, Forestry Commission Wales staff face the difficult task of developing a programme of management which respects, considers and balances the many and diverse objectives at Newborough in a way which is mutually beneficial.

Forestry Commission Wales

Newborough beach and forest

***Jonathan Levell**, Forestry Commission Wales, Planning Officer.*
Jonathan.levell@forestry.gsi.gov.uk

Hysbysfwrdd / Noticeboard

If you would like your wildlife event to feature on these pages please contact us on 01248 387373 or email info@naturcymru.org.uk (entries may be edited). Please mention Natur Cymru if you attend any of these events.

NATUR

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24 Ion / Jan *Conservation Management*. 10 wythnos / weeks.

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3-5 Chwef / Feb 2010
Rheoli a Darparu Mynediad i Gefn Gwlad i gynnwys Pobl ag Anableddau
Managing and Delivering Countryside Access to include Disabled People

24-26 Chwef / Feb 2010
Asesiad o Gynefinoedd yn y Gaeaf ar gyfer Rheolwyr Tir a Staff Rheolaeth Datblygu
Winter Habitat Assessment for Land Managers and Development Control Staff

1-5 Maw / Mar 2010
Mynediad a Hawliau Tramwy Cyhoeddus
Access and Public Rights of Way, Law and Management

8-11 Maw / Mar 2010
Rhwydweithiau Cynefinoedd Coedwig
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WWT

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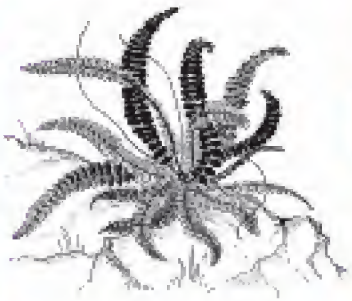
13 & 20 Dec *Santa on a Sunday*
Help Santa feed the birds at 1.45pm and then visit him in his grotto.



School of Education and Lifelong Learning, Aberystwyth

COURSES 2010

From 12 Jan: *Our Countryside Change & Community*
This course aims to help land owners and users develop a way forward for managing this limited resource. Carmarthen St Peters Civic Hall, 10 sessions Tuesdays 10am-12pm. £50

From 14 Jan: *Marine Life & Conservation in Cardigan Bay*
This course addresses the conflicts between conservation and man's use of the ecosystem. Borth Youth Hostel, Ceredigion. 5 Sessions alternate Thursdays 10am - 3pm. £50

Date TBA: *Identifying Mosses, Liverworts & Lichens*
This course will enable you to develop good basic identification skills and build up a small reference collection. Welsh Wildlife Centre, Cilgerran, Pembs. 3 sessions 10am-3pm. £65

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28 Jan-13 Feb *Forest ecology*

www.cazs.bangor.ac.uk
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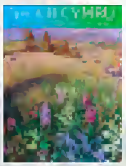

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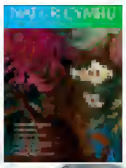

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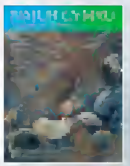

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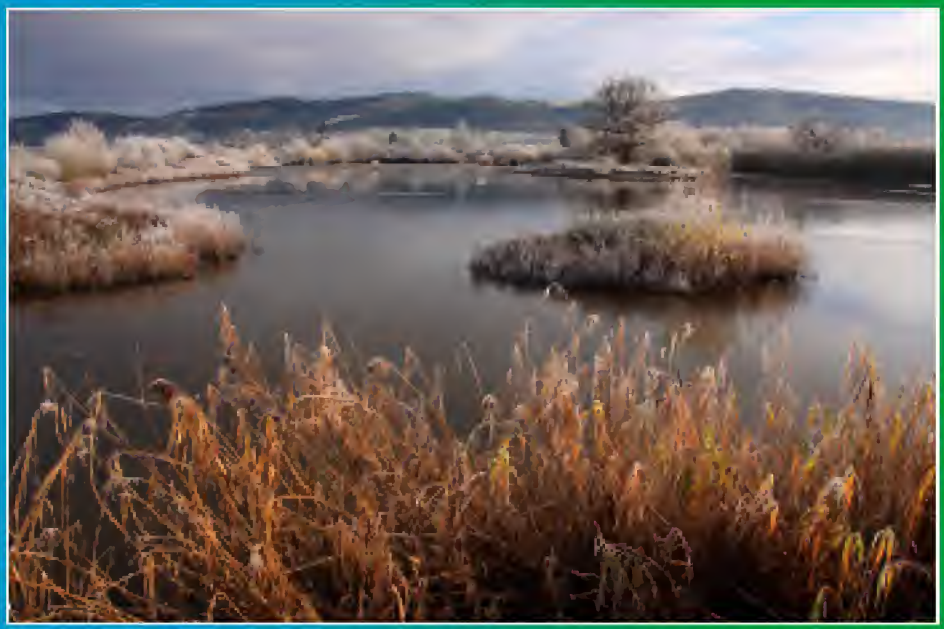

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